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HISTORICAL CULTURAL RESOURCE SURVEY

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Roger Olmsted and Nancy Olmsted
Historical Consultants

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SAN FRANCISCO CLEAN WATER PROGRAM-APRIL 1982

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Cover -
It was a sparkling day at the Bay View Hotel at San Francisco's fastest racing turf when Muybridge took his stereo view in 1869. The long exposure that was necessary for a glass plate made the American flag blur but caught the image of the standing horses and buggies. The Sunnyvale/Yosemite sewer alignment transects part of the track on Carrol Avenue and Ingalls Street. (Bancroft Library)

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SAN FRANCISCO BAYSIDE

HISTORICAL CULTURAL RESOURCE SURVEY

NORTHERN BAYSIDE

CROSSTOWN

SUNNYVALE / YOSEMITE AND HUNTERS POINT

Roger Olmsted & Nancy Olmsted
Historical Consultants

David Fredrickson & Vance Benté
Archaeological Consultants

CHINESE - MALE AND FEMALE

This commingling of men of all creeds, and conditions, from all quarters of the world, with one common object - that of improving their condition -and who, more or less, have been dependent upon each other in its accomplishment, has given a commendable and cosmopolitan spirit of liberality towards each other -more perhaps than in any other land . . .

FOR THE SAN FRANCISCO CLEAN WATER PROGRAM By Resource Consultants, April 1982

ABSTRACT

San Francisco Bayside is a cultural resource survey by Resource Consultants of the area of the Bayside sewer facilities of the San Francisco Clean Water Program. Developed from a preliminary study of various alternative routes prepared in August 1980, this volume includes a research design to re-identify the location of the prehistoric Native American shellmounds first explored by Nels C. Nelson between 1906 and 1910. Also included in **San Francisco Bayside** are the results of a testing program that located a shellmound or midden on the basis of cartographic predictions and the archaeological recommendations for mitigating impact on that site.

In addition, the report discusses potential National Register sites in the following categories: (1) Chinese settlements, including shrimp villages, combination factory-and-residence clusters, truck farming centers, and dump sites; (2) boatyards and shipyards on the Potrero and Hunters Point, dating from the 1860's, where San Francisco's unique bay scows were constructed; (3) potential sunken watercraft and ship hulks from the nineteenth century; and (4) six urban trash disposal sites used by San Franciscans in the nineteenth century.

Because of the extensive geographical boundaries of the proposed Bayside sewer construction, the volume is divided into three major sections: (1) Sunnydale/Yosemite and Hunters Point; (2) Northern Bayside, and (3) Crosstown. Archaeological recommendations, appearing at the conclusion of each section, include prehistoric, and historical features. Above-ground potential National Register sites such as the Union Iron Works are also discussed.

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San Francisco Bayside
historical cultural
1982.

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SAN FRANCISCO BAYSIDE

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(Note: Each of the three major geographical contract areas contains a separate table of contents to aid the reader. Archaeological recommendations complete each contract section.)

INTRODUCTION

Method and Objectives for the Bayside Facilities Project Cultural Resource Survey

In February, 1979, Resource Consultants recommended to the San Francisco Clean Water Program that a preliminary study of the Bayside Facilities area based largely on historical geographical sources should precede a later, more intensive study of the areas to be affected by sewer construction. This suggestion was based on the authors' experience of preparing the North Shore and Channel Outfalls historical cultural resources surveys at the same time that heavy construction equipment had already begun its work. Because federal regulations call for identification and description of historical cultural resources at the earliest possible stage in the planning process (36 CFR 800), a preliminary evaluation seemed a logical and cost-effective approach to finding out what resources might lay hidden beneath the ground.

Designed to aid in the selection of alternative sewer routes, the preliminary study was organized so that information about the potential cultural resources along specific routes could become part of the complex decisions about the final route to be taken.

The Nature of the Preliminary Study (completed August 1980)

In the case of the Bayside Facilities, the Clean Water Program of San Francisco was planning construction of eight major facilities. In the summer of 1980, there were as many as six alternative routes on the Mariposa Facilities, five alternatives on the Hunters Point Facilities, six alternatives on the Sunnydale/Yosemite Transport/Storage, three alternatives on the Islais Creek

Transport/Storage, two alternatives on the Channel/Islais Transport/Storage, and four alternative construction routes on the very large Crosstown Tunnel, with three different routes between the major portion of the tunnel and two alternative pump station sites. All in all, there were over 30 different proposed alternatives for the major construction area that reached as far north as The Embarcadero and Channel Street and south to the Potrero, Islais Creek, Hunters Point, Candlestick Point, and just past the San Mateo County line. From the east portal of the Crosstown Tunnel, various routes extended to Lake Merced, located on the western edge of the San Francisco Peninsula.

Map 2 was published by the Coast Survey in 1869 and, as it shows the entire San Francisco Peninsula, it is included here to give the reader an idea of the size of the contract areas under consideration. Map 2 is shown with the sewer alternatives as selected by July of 1981.

The Preliminary Survey was **not** intended as an extensive cultural overview that had as its purpose a background history of the areas, plus an inventory of known cultural resources. Nor was it intended as a kind of combined preliminary "natural site study" and intensive historic cultural resource survey, such as was produced by the authors for San Francisco's Yerba Buena Center area.

Instead, our method was to assemble the particularly relevant maps from the earliest precise survey of San Francisco, the U.S. Coast Survey Map of 1852, bring them to a common scale with the greatest possible precision, and create overlays of the various sewer pump station sites and routes, together with their various alternatives. Using a unique industrial-commercial construction map plotted in 1919 for the overlay, we added to this data base all the appropriate Sanborn Map information for the area from 1901 through 1965. It should be noted that important commercial, industrial and residential development of the area did not occur before the 1920's in heavy enough concentration to merit mapping by the Sanborn Company, with a few exceptions like Potrero Point, an early home to heavy industry.

On the large overlay maps we were able to add adobe sites as located by Hendry and Bowman, San Francisco Landmarks, National Register Sites and California Historic Sites, and the approximate location of the Nelson Shellmounds.

In addition to these large overlay maps, we included in this preliminary study sections from each of the maps, comprising a complete set, color coded for each alternative route and pump station site, for the time period from 1852

MAP 2
NORTH POINT TO VISITACION POINT
U.S COAST SURVEY
1869

by Nels C. Nelson around 1909. The researchers working on the preliminary report were working with Nelson's published map (see Map 2 in the **Research Design to Locate Nelson Shellmounds Subject to Impact by the San Francisco Sewer Route 2A-1**, which has been included in part in this larger study) and the Coast Survey 1869 Map. The background prehistoric section of the Preliminary Survey was accomplished by Margy Purser and Brenda Butler, working under Dr. James Deetz. Excerpts from their background study have been included in this larger Bayside Study, as relevant to a better understanding of the prehistoric potential for the Sunnydale/Yosemite, Hunters Point, and other areas.

Among the other cultural resources identified for further intensive study in the preliminary report were: (1) potential cultural deposits from Chinese residents, including shrimp camps, factory-workers' resdiences, truck-garden sites, and an encampment and dump site in the area of Tennessee and 23rd streets; (2) boatbuilders' and shipbuilders' yards at Hunters Point and the Potrero dating from the 1860's; (3) scattered farm and dwelling sites from the 1850's through the 1880's that lay in the path of the various sewer alternatives; (4) six dumping sites dating from the 1860's through the 1920's that were associated with different types of urban trash deposits; (5) 19th century wooden vessels that might have been enclosed by landfill along the sewer alignment; and (6) a potential historic district of working-class houses along Tennessee Street dating from the 1970's and 1880's.

The Complex Process of the Final Selection of Sewer Route Alternatives

The selection process of the final sewer routes was a complex engineering problem requiring linking of the existing sewage treatment plants and systems that extend along the periphery of the San Francisco Peninsula. This decision-making process was complicated still further by political reaction to some of the alternatives under consideration. In particular, the Crosstown Tunnel was the source of considerable dispute. A not untypical newspaper story of the period lead off: "Fight Expected Over Big S. F. Sewer Tunnel. . . . A new San Francisco sewer battle is looming over the route of the $300 million tunnel that will burrow six miles across the south part of the city and bring noise and truck traffic to several neighborhoods. The fight will pit neighborhood groups, hoping to avoid the disruption of heavy construction, against city officials charged

with building the $1.6 billion project, the largest public works undertaking in the city's history" (**San Francisco Chronicle,** July, 1980).

Although convinced of the need for ending pollution in San Francisco Bay from storm overflows that dumped untreated sewage into what was San Francisco's most prized and important physical attribute, the citizens objected to the sewer costs when they received water bills with unexpected and substantial rate increases. Supervisors, responding to a popular issue, united in their efforts to cut the total costs of the eight-year project. The most cost effective engineering solutions to a design problem in which marginal pollution control standards were pitted against reaction to overall cost, with localized problems of neighborhood disruption thrown into an equation in which original givens were being questioned, complicated and delayed decision on alternative designs and routes. Given these pressures, the historical archaeological data became, in effect, an additional exotic element to be considered in what was already a difficult engineering decision-making process.

Route IC-1 is Rejected. Included in the information coming out of the Preliminary Study was the following statement:

> **Recorded Prehistoric Sites** exist in the upper Islais Creek area. Three sites recorded by Nels C. Nelson in 1908 lie near the southern edge of Islais Creek in the vicinity of the place where the western arm of alternative IC-1 approaches Route #1 of the Crosstown Transport. . . . These are SFr-16 (Nelson 395), SFr-17 (Nelson 394), and SFr-18 (Nelson 393). . . . It appears that IC-1 transects one of these shellmound locations, and the location should be ascertained if this alternative is selected (Olmsted, **et al.** 1980: 62).

Given the complexity of the selection process, it is hard to say what weight this archaeological information brought to bear upon the rejection of IC-1, but in meetings with the project directors, the historians and archaeologists were able to make the point that avoidance of a known prehistoric site was the most cost-effective decision insofar as cultural resources were concerned.

Army Street Is Studied and Rejected. Because the alternative selection process was continuing well after the Preliminary Study was completed, the possibility of using the Army Street route (422-C2) had to be considered as one viable

route in connection with the Crosstown Tunnel. Therefore, in late September an additional study was made as an addendum to the Preliminary Survey of the Bayside Facilities Project Cultural Resource Study. Among the findings:

> Although there are no recorded prehistoric sites, such as the Nelson Shellmounds reported elsewhere in the Preliminary Report, the fact that Army Street in effect follows the line of Precita Creek, which was a freshwater stream, navigable in part, and willow-lined, as shown on the 1857 Coast Survey Map, prevents dismissing the possibility of prehistoric remains that would relate to an Indian settlement or occupation site. . . . The depth of construction planned for the Army Street portion of the sewer would seem to be deeper than any previous excavations along the line of Army Street, so that whatever remains may have originally been deposited there may indeed be in place. . . .
>
> Spanish-Mexican Gold Rush: The possibility of uncovering the "old stone wall placed by the Jesuits," which ended in the park presently being constructed (October 1980) just north of "The Farm" between San Bruno and Potrero Avenue, and south of the line of Utah Street, would be of high archaeological interest.
>
> The possibility of encountering two Gold Rush structures. . .would depend on whether subsequent construction on Army Street had indeed demolished these structures. Since the 1857 farmhouse is so obviously directly in the line of Army Street and can be precisely located, a test program, prior to construction, could ascertain if the foundation or parts of this farm remain. . .
>
> It has been suggested that if no other considerations prevent the sewer from going down the south side of Army Street instead of the north, such a southern route should be chosen to avoid the continuous row of over 85 (basement) structures, between Potrero Avenue and San Jose Avenue, dating back to 1889 and 1900. It is not certain precisely how deep the basements and foundations of these row houses extended, but the fact remains that such a continuous row might constitute a major historical archaeological find should they prove to contain artifacts associated with the working class of this period. That the row would qualify for the National Register seems more likely than not (Olmsted 1980: 114-116).

Confronted with potential Indian settlement archaeological sites, a Spanish stone wall dating back to the 18th century, Gold Rush structures potentially remaining in the line of Army Street, and a row of 85 basement structures on the north side of Army Street that dated back to 1889-1900, one could say that the archaeological reasons for avoiding Army Street were certainly factors to be taken into consideration in rejecting the route. There were many other community concerns that had a direct bearing on the decision—any one of which may have been more important than cultural resource concerns—but we use this

case to illustrate the usefulness of a preliminary survey in producing reliable data early in the engineering design and decision making process.

It should be emphasized that such recommendations coming from a Preliminary Survey are apt to lean cautiously toward the protection of potential historic cultural resources, because more intensive study may reveal (and often does) that subsequent impacts have removed the resources, or that their seeming significance is negated by additional research: **e.g.,** photographs and newspaper accounts of the widening of Army Street might well have revealed that the basements and foundations of the 85 frame houses on the northern side of Army Street were unlikely to contain artifacts from the period before Army Street was widened.

Division Street Is Considered and Selected. By the early spring of 1981 it became apparent that some sewer facilities were to be constructed that had not been included in the Preliminary Report. One of these was the Division Street Connection on Berry Street at Seventh. As construction was impending, an intensive study was completed and submitted on April 21, 1981. This site was on the edge (and perhaps extended into) one of the best known city garbage dumping sites from the period of 1870 to 1895. The location had been identified by Wirth Associates in **Potrero 7,** and although refuse had been extensively recycled by scavengers in the 1880's and early 1890's, observations made by Wirth when P.G. & E. put down test trenches revealed a considerable amount of cultural debris in well-preserved condition.

The Division Street study concluded:

> In order to justify the high cost of archaeological testing, sampling, or monitoring of such a dump site it is necessary to establish clearly the unique character of the information that an archaeological program may produce and its importance as a supplementary or special contribution to knowledge that may be gained otherwise (Olmsted, Fredrickson and Bente 1981: 8).

The archaeologists recommended:

> If refuse from a relatively broad cross-section of the city was indeed disposed of at Seventh Street, as it was at Sixth Street, the completeness and integrity of the dump itself must be evaluated. Given the thoroughness with which arriving refuse was reportedly scrutinized and scavenged, a question arises regarding completeness and integrity. Even assuming the scavenging operations at the

> dump were only partially as thorough as reported, the result of this process would be not only the removal of selected materials, both organic and inorganic, but also a presumably thorough mixture of materials from different wagon loads. Thus, the depositional context itself would be irretrievably lost and remaining materials would be heavily biased in type and quantity. . . The value of these materials is compromised, in that meaningful generalizations cannot be made without a more refined notion of their representativeness. . . . Therefore, it is concluded that a significant cultural resource is not likely to be present at Seventh and Berry Street (**Ibid.** 14).

Sunnydale/Yosemite Routes. The Preliminary Study of alternative routes in the Sunnydale/Yosemite area passed through an area of high prehistoric archaeological sensitivity. The historians and archaeologists met with the Clean Water project managers on several occasions following this preliminary report. In these meetings they clarified the information that concerned the prehistoric potential—emphasizing not only the high probability of the sewer construction impacting Nelson's mounds but the strong possibility of encountering mounds that Nelson did **not** record but are strongly suggested by the hachure marks on the Coast Survey chart and their proximity to other mounds.

Out of these meetings there developed a consensus that some exploratory work to more precisely locate the Nelson Shellmounds would be the most cost-effective decision the Clean Water Program could make. Either the mounds could be identified as being in the right-of-way of the proposed construction and the problem could then be appraised well in advance of intended construction, or the mounds could be proven either to be elsewhere or so heavily impacted at some previous time that the problem would no longer exist.

Consensus as to the importance of the earliest possible identification of the mounds in relationship to the planned sewer route led to a **Research Design to Locate Nelson Shellmounds Subject to Impact by San Francisco Sewer Route 2A-1** (Olmsted, Pastron, and Prichett, November, 1980). Because this research design shows the precision that was possible in locating prehistoric sites **without** an actual field testing program and demonstrates the processes that go into narrowing down the logical possibilities, we have included portions of the report in the section that follows on prehistoric sites.

Coincidentally with the Clean Water engineers' selection of Route 2A-1 in the Sunnydale/Yosemite area, a private developer, the Campeau Corporation,

was building an office complex just to the west of Alana and Harney Way near Candlestick Point. The permit procedure involved clearance by the Army Corps of Engineers for a drainage outfall that, in the opinion of Mark Rudo, an archaeologist in the Corps of Engineers' Environmental Review section, would possibly impact Nelson SFr-Z. Mr. Rudo had been conducting research into Nels C. Nelson's work in the early years of the 20th century, had been seeking to find Nelson sites, and had been in communication with Roger Olmsted concerning potential impact on Nelson sites by the Sunnydale/Yosemite alternatives.

The Campeau Corporation outfall was about 350-400 feet south of the calculated position of a 1910 test excavation shown on a sketch map made by Nelson. However, Nelson's own observations and estimates as to the east-west dimensions of the largest shellmound, combined with topographic information and the conditions implied by Nelson's sketch, suggested strongly that the southern perimeter of the mound might very well lie in the immediate vicinity of the proposed sewer outfall.

An archaeological test boring program conducted by California Archaeological Consultants, Inc., at the end of January 1981 demonstrated that at least five feet of an apparently intact Indian midden underlay a portion of the outfall alignment at the intersection of Harney and Alana ways.

The physical proof of the prehistoric site in an area that would be impacted by the Sunnydale/Yosemite 2A-1 was followed by a further field survey of the area and the suggestion by Roger Olmsted that the Clean Water Program consider the possibility of avoiding the area through alterations in the sewer route; if this proved not feasible a field testing program should be embarked upon to determine the full depth, size, and integrity of the shellmound. He also recommended that the previously unrecorded potential prehistoric site at Griffith and Shafter be tested for prehistoric evidence and that the same might be done for the smaller mound that was suggested on the Coast Survey chart near Thomas and Hawes.

Following this recommendation, the Clean Water Program endorsed a testing program for these three sites. In late April of 1981, California Archaeological Consultants, Inc. conducted this investigation that further confirmed the presence of prehistoric midden.

From the authors' viewpoint, the early identification of the prehistoric sites from the archival study and follow-up field study proved the value of a

Preliminary Study, particularly in such a large project area as the proposed Bayside Facilities. In a climate of increasing cutbacks in government spending, the necessity of responding realistically to what could be designed or within allowable costs resulted in complications in the environmental review process that reflected the still larger complications faced by the San Francisco Clean Water Program. It is to the credit of the management of this program that they have been able to comply with the full spirit of the Historic Preservation Act, the Code of Federal Regulations, and the Clean Water Guidelines as they apply to cultural resources management.

The Phase II Intensive Archival Study of Selected Routes

The Phase II intensive archival study of identifiable and potential cultural resources of National Register significance was to follow upon the selection of the final sewer routes. Although the Preliminary Study developed much specific information, leading to such site specific work as the report on the Nelson shellmounds, the essential rationale for conducting the intensive research after selection of routes was that identification of potential archaeological resource sites should be as specific as possible regarding location, impact, and significance.

Draft E.I.R.'s. In negotiating the Phase II portion of the Cultural Resource Survey, the Clean Water Program asked the Principal Historical Investigator and the research team to reverse the normal order of the Phase II intensive survey by first writing draft E.I.R. statements for each of the large contract areas with their extensive excavations, pump stations, reservoirs, transport/storage systems, tunnels, regulator units, and the like. These statements were then to be included in draft Environmental Impact Reports being produced as three separate documents by different firms.

These statements were to be based solely on the information in hand as developed from the Preliminary Study, but were to include the historic setting of the sewer alignments in each area, the potential National Register cultural resources in each area, the degree of impact the proposed sewer construction would have on these resources, and suggested mitigation measures regarding this impact. Futhermore, studies of these large construction areas were to include resources ranging from paleontological through prehistoric (both identified and

suspected as areas of high sensitivity), resources from the Spanish and Early American periods, and structures dating from the Gold Rush era through modern times. To be included were extant buildings judged to be of National Register significance that might be impacted by sewer construction.

In the normal process of any cultural resource study, the final historical-archaeological recommendations worked out with the historians and the archaeologists try to be as specific and as carefully reasoned as possible. That is why they are customarily produced as an **end** product, assimilating all of the historical and field survey data in a process that takes many complex factors into consideration.

As a result, the only approach available to the historians in these early, draft E.I.R.'s was to include all that was known about the cultural resources before the actual intensive archival study had been completed, while at the same time dealing with planning changes being fed into the process on a weekly, even daily basis. Again and again the E.I.R. statements called for more intensive study in Phase II and postponed **any** mitigation statements pending the final results of such a study and inclusion of knowledgeable archaeological evaluation.

The Phase II Intensive Archival Study. The decision was finally reached by the Clean Water Program and Resource Consultants to concentrate on the most archaeologically sensitive portion of the Bayside Facilities--the Sunnydale/Yosemite and Hunters Point portion. Accordingly, the researchers supplemented their three large-scale historic maps with additional information from the Sanborn Maps of 1899, 1912, and 1929. In addition, the Coast Survey and Geodetic Maps of 1882 and 1895-1900 were brought to a 600 feet-to-1 inch scale to conform to the existing overlay maps. Using these maps and an assemblage of photographs, the researchers then conducted oral interviews with area residents to reconstruct both recent and long-ago but still-remembered changes in the Bayside neighborhood.

Two major classes of historical cultural resources seemed most likely to be encountered: (1) archaeological remains from the Chinese inhabitants whose vegetable gardens, and shrimp fishing villages all fell within the Sunnydale/Yosemite and Hunters Point contract areas; and (2) the early boatyards along Hunters Point that produced every kind of boat or ship ranging from small yachts to the Chinese fishing junks and scow schooners, the workboats of San

Francisco Bay. In addition, a few farmhouses from the 1850's and 1870's lay within the line of the proposed excavation. For these scattered structures, it was necessary to ascertain whether or not their remains would have been filled over or scraped away. To do this, the height of modern street grades were checked against earlier grades, and in turn against the contours as shown on the historic maps from the time these dwellings were in active use. Finally, it was necessary to ascertain the probability that 19th century wooden hulks might have been enclosed by landfill, because newspaper accounts between 1905 and 1912 often referred to the abandonment of old whalers on "the mud flats of south San Francisco."

The researchers' task, then, was to take any specific mention of these activities and verify the validity of these accounts, by internal evidence and by other accounts, to supplement this data with the harder evidence of maps, photographs, and other views, and then to locate the specific physical nature of the activities in relationship to the proposed sewer construction. In this way the degree of probability of impact by the sewer could be reasonably assessed. Beyond this, it was necessary to weigh and examine the significance of any cultural resource in terms of what archaeological disclosure would add to our knowledge of such activities as boatyard construction techniques of the late 1860's and 1870's.

Archaeological recommendations represented a consensus between the historians and the archaeologists invovled in the project. The principals were, respectively, Roger Olmsted aided by Nancy Olmsted and David Fredrickson aided by Vance Bente. On the important prehistoric section, additional contributions that proved to be correct and helpful were made by a number of people. We have included their work both to give the reader a sense of continuity about how this significant prehistoric program developed and to give their information a wider audience, since it was issued as in-house documents for the San Francisco Clean Water Program. Two students of Dr. James Deetz, Margy Purser and Brenda Butler, wrote the background for the Preliminary Report, which we have included in part. Jack Prichett and Dr. Allen Pastron contributed to the report, **The Design to Locate the Nelson Shellmound Subject to Impact by San Francisco Sewer Route 2A-1.** Mark Rudo, archaeologist with the U.S.

Corps of Engineers, expedited the initial testing program as it related to the Campeau Corporation's excavation near SFr-7 and has proved most helpful because of his specialized interest in Nels C. Nelson's work on prehistoric sites in the Bayside Facilities area. Peter Banks carried out the actual testing program for the Campeau Corporation and the further testing program for the San Francisco Clean Water Program.

An Assessment of the Phased Process of Cultural Resource Surveys. Based on the authors' experience with cultural resource surveys accomplished since 1977 on major San Francisco projects, it appeared that the best **theoretical** model would call for a Phase I Preliminary Study of an area proposed for construction. This would advise planners of several classes of information: (1) A field survey to determine the structures eligible for the National Register that might lie along the proposed construction right-of-way; (2) all relevant historic maps which would determine whether certain construction areas could in effect be written off from an archaeological viewpoint (e.g., the route was in the water during most of its prehistoric and historic life, or the area was scraped away to make room for modern construction in a manner that precludes the possibility of the presence of cultural deposits); (3) a determination of areas which contain structures as shown on historic maps that would be impacted by construction (i.e., areas of high potential but as yet undetermined archaeological sensitivity that either might be avoided or should be investigated further). The Phase II study would then incorporate the information and concentrate only on those areas subject to impact, but place them in a larger historical context so that their significance, or lack of it, could be clearly understood.

The two-stage study would appear to have many advantages, provided the construction project management clearly understood the limitations and purposes of the Preliminary Study and did not attempt to construe it as a summary of conclusions rather than an assessment of **initially** observed and revealed cultural resources. The Preliminary Survey cannot be directly translated into an adequate compliance or cultural resource planning document. The Preliminary Survey **can** be a useful engineering planning document.

Disadvantages of the Phased Cultural Resource Document. The authors have contended that the survey documents produced at public expense should go beyond

the necessity of predicting archaeological resources and assessing significance. They have felt that the bringing together of a variety of historical evidence on a given area serves two additional primary purposes. One purpose is to demonstrate, at least in part, the extent and depth of archival information that develops the social, ethnic, industrial, or other specific historical themes to which the artifactual resources in the ground are related. Only by carrying parts of the archival search to a point of diminishing returns is it possible to weigh the importance of the archaeological evidence in understanding the human story.

A second purpose is that the document itself must stand on its own merit as a useful scholarly work. It is fair for the public to ask, "Is this historical document worth having paid for? Is there anything in this that I would care to read or that would be of interest to other people I know?" To the degree that the document tells a literate, coherent and lively story, supported with photographs and views that are captioned in such a way as to add to the readers' understanding of the area, the researchers have succeeded in the education of that public. Bringing together historic maps and relating them to photographs and to changes in geography of an area is still another element in adding to public understanding. Oral histories by long-time residents flesh out the written documents and add specific information about the maps and photographs in a way that can never be duplicated. Admittedly the report-reading public is a small one, but by placing the historical surveys in libraries the information is at least there for both the casual reader and the serious scholar.

A serious disadvantage of the phased study became clear in the course of the work at hand, however. Given the same amount of time and money, research can go a lot further in producing a **single** comprehensive document that both complies with the law intended to protect cultural resources and at the same time measures as history worthy of public consumption.

Analysis of and Recommendations on the Paleontological Resources of the Bayside Facilities Project Route - R. B. G. Naidu

The Bayside Facilities Project will encounter the following geologic formations: 1) Franciscan Assemblage; 2) Merced Formation; 3) Colma Formation; and 4) undifferentiated Pleistocene sediments. Paleontologic resources or fossils are present in each of these formations.

Franciscan Assemblage. The Franciscan Assemblage, present as bedrock in the project area, forms visible outcrops in the eastern part of the project route. A widespread assemblage exposed along much of the northern California coast, the Franciscan is formed of a complex series of rock types, consisting mostly of sediments but containing some volcanics and metamorphics. It ranges in age mostly from late Jurassic through Cretaceous, apparently extending into the Cenozoic in some places. Fossils are present but not abundant in the assemblage (see table 1). Most megafossil remains are from shales or sandstone within the assemblage (Bailey et al. 1964; Bonilla 1971; Schlocker 1974).

Field observations along the project route were limited to surface outcrops, and for the most part they indicate a lack of sandstone or shale. One exception is a limited sandstone facies, occurring at the end and immediately west of 30th Street, in which no fossil remains were encountered. It is recognized that the strata may be significantly different at the elevation of the project route. However, the lack of sufficient data concerning subsurface fossil occurrences, the difficulty of carrying out monitoring during subsurface excavations, the paucity of known fossil deposits and the low probability of discovering additional deposits in the Franciscan all suggest that further mitigation for this Bayside project is unnecessary.

Merced Formation. The Merced Formation does not occur at the surface along the project route, but will be encountered below the surface at the western part of the route. The Merced is present at the coast immediately south of the project area. It is a highly fossiliferous marine unit consisting predominantly of soft sandstone and ranges in age from Pliocene through Pleistocene. Fossil plants, invertebrates and vertebrates are recorded from the formation (see table

ii). Some fossils recorded as from undifferentiated Pleistocene sediments (see below) may actually be referrable to the Merced (Glen 1959; Axelrod 1967; Schlocker 1974).

It would be preferable to observe excavations where the Merced will be encountered; however, the fact that these excavations will be totally subsurface would seem to preclude this possibility. One exception is the westernmost part of the project route, which may conceivably encounter the Merced at shallow depths in an area that would be likely to have open excavations due to its proximity to the end of the route. Any such open excavations in the western part of the route should be carefully examined for fossil remains.

Colma Formation. The Colma Formation is present as surficial deposits in the western part of the project route, and will be encountered beneath the dune sand toward the coast. The most widespread occurrences of the Colma Formation are to the south of the city of San Francisco. The Colma is a relatively thin and horizontally bedded sandstone unit and is generally poorly indurated. It is thought to be late Pleistocene in age. Where exposed, the formation is apparently essentially unfossiliferous, although subsurface excavations in the city of San Francisco have uncovered ground-sloth remains and fossil wood from sediments that may be referrable to the Colma. A partial fossil bird skeleton in the collections of the Geology Department, California Academy of Sciences, may also have been collected from the Colma. Undifferentiated late Pleistocene sediments that are approximately the same age as the Colma are present in the Bay Area, and these have yielded many specimens of fossil vertebrates and plants (see table iii). Vertebrate, invertebrate and plant fossils occur immediately south of the project route, apparently from sediments below the Colma, but the exact relationship of these sediments to the Colma is somewhat obscure (Miller and Peabody 1941; Peabody 1945; Savage 1951; Hall 1965; Axelrod 1967; Schlocker 1974; Helley, et al. 1979).

Field observations of the Colma Formation did not yield any fossil material, but the surface exposures along the project right-of-way are extremely limited. It is probably unrealistic to attempt monitoring of subsurface project excavations. However, any open or accessible excavations should be closely observed in the event significant fossil remains are encountered.

Conclusions and Recommendations. Project excavations will encounter the Franciscan assemblage in the eastern half of the right-of-way. The Colma Formation and the Merced Formation will be encountered in the western half of the right-of-way. Undifferentiated Pleistocene sediments, bearing an uncertain relationship to the Colma and Merced, will be encountered in the extreme western part of the project route. No mitigation is recommended for deposits of the Franciscan. While observation or monitoring of ongoing excavations in the Merced and Colma would be preferable, the fact that the excavations will apparently be in the nature of subsurface tunneling would seem to preclude the possibility. The most critical area in terms of paleontologic resources is here considered to be the westernmost part of the project route. In this vicinity there is a strong likelihood of encountering fossil materials in the Colma, Merced, or undifferentiated Pleistocene sediments. Any open or accessible excavations in this area should be carefully scrutinized as the excavation progresses.

The remainder of the Bayside Facilities project predominantly encounters artificial fill. Where rock units will be affected, the only geologic formation involved is the Franciscan Assemblage. The low likelihood of occurrences of fossil deposits in the Franciscan (see above) and no possibility of paleontogical resources in the artificial fill indicate that no further investigation is necessary.

Table 1

Fossils recorded from the Franciscan assemblage

in the project area and vicinity

Taxon	Within project area	Vicinity of project area
Molluscs		
Buchia keyserlingi[1]		X
Buchia pacifica[1]		X
Inoceramus schmidti[1]		X
Inoceramus elliotii[1]		X
Douvilleiceras cf. *mammillatum*[1]	X	
Mantelliceras sp.[1]		X
Acroteuthis sp.[1]		X
Lucina alcatrazis[2]		X
Pelecypod, undetermined[2]	X	X
Paladmete perforata[2]	X	
Annelids		
cf. *Terebellina* sp.[4,5]	X	X
?Enteropneusta[5]		X
Nereidae, undetermined[5]		X
Vertebrates		
Ichthyosaurus franciscensis[3]		X

Sources:

1. Wright, 1974
2. Schlocker, 1974
3. Bailey and others, 1964
4. California Academy of Sciences, Geology Department, Locality No. 45189
5. California Academy of Sciences, Geology Department, Locality No. 54137

Table ii

Fossil invertebrates recorded by Glen (1959) from the Merced Formation in the project area southwest of Lake Merced

Molluscs

Cryptomya californica

Macoma inquinata

Macoma nasuta

Megapitaria densa

Mytilus (Mytilus) edulis

Ostrea lurida

Protothaca staminea

Psephidia lordi

Saxidomus nuttalli

Schizothaerus nuttallii

Lacuna cf. divaricata

Mitrella carinata var. gausapata

Moniliopsis cf. incisa

Nassarius (Schizopyga) cf. californianus

Nassarius (Schizopyga) mendicus

Nassarius (Schizopyga) mendicus cooperi

Nassarius (Schizopyga) moranianus

Olivella pedroana

Polinices (Euspira) cf. lewisii

Thais (Nucella) lamellosa

Turbonilla (Pyrgolampros) adleri

Crustaceans

Balanus sp.

Table iii

Fossils from the Colma Formation and Undifferentiated Pleistocene Sediments

Taxon	Within project area	Within project area
Birds		
Uria aalge [1,4]	X	X
Mammals		
Paramylodon harlani [1,3]	X	X
Elephas sp. [1]		X
Camelops sp. [1]		X
Bison sp. [1]		X
Equus sp. [1,2]	X	X
Mammuthus sp. [2]	X	X
Mammuthus cf. *columbi* [2]		X
Mammut cf. *americanum* [2]	X	X
cf. *Breameryx* sp. [2]		X
cf. *Antilocapra* sp. [2]		X
Megalonyx sp. [2]		X
Tapirus sp. [2]		X
Plants		
Pinus radiata [5]	X	X
cf. *Juniperus californica* [3]	X	

Sources:
1. Peabody, 1945
2. Savage, 1951
3. Schlocker, 1974
4. California Academy of Sciences, Geology Department, Locality No. 37170
5. California Academy of Sciences, Geology Department, Locality No. 40939

Some Geologic Evidence Concerning Prehistoric Human Habitation Sites in the Bayside Facilities Project Area —R. B. G. Naidu

With the exception of artificially filled areas, the approximate high tide shoreline of the eastern side of the northern San Francisco Peninsula 5,000 years ago closely approached the present shoreline in shape. Due to the underlying topography, the shape of the shoreline in this area has not appreciably changed in the past 15,000 years.

The presumed mean sea level of 5,000 years ago was about 8 meters below that of today; 10,000 years ago it was 55 meters below today's level.

Holocene estuarine deposits between San Francisco and Alameda are generally not more than 10,000 years old.

Tectonic subsidence probably can account for slightly further inundation of coastal environments; however, the rate of downward crustal movement is slow enough that it probably did not result in additional submergence of more than one meter over the past 5,000 years for the northeastern part of San Francisco Peninsula.

The paucity of salt marsh deposits below the present sea level in this area may indicate that the local siltation rate was exceeded by the relative rise in sea level. Freshwater marsh deposits less than 10,000 years old have been recorded from the San Francisco area at depths up to 45 meters below sea level.

Because the mean sea level rapidly changed between 10,000 and 5,000 years ago, potentially inhabitable coastal areas in this time span probably lie beneath the present water level, or the bay mud. Glaciers had reached approximately their current dimensions by 5,000 years ago, so the rate of subsidence due to rising sea level since then has been relatively slow. Potentially inhabitable areas younger than 5,000 years old may, therefore, lie above present sea level (see Atwater 1979; Atwater, et al. 1977; Adam, et al. 1972).

In terms of possible impact of the Bayside Facilities Project on human habitation sites in the project areas of Sunnydale/Yosemite (west and south); Hunters Point; Islais Transport/Storage; Soule Pump Station and Reservoir; and Channel-Islais Transport, the following observations are obvious:

1) Most or all of these areas had available fresh water in prehistoric times.

2) Most or all of these areas would have provided access to available food crops prehistorically.

3) Most or all of these areas were relatively accessible in historic times.

4) Geologically there is nothing to preclude prehistoric human habitation in these areas.

5) Any prehistoric human habitation sites encountered will probably be less than 5,000 years old.

6) Geologically there is no way to predict areas with greater or lesser likelihood of prehistoric habitation or use; such predictions should, therefore, be based on ecologic inferences of resource availability.

SUNNYDALE / YOSEMITE AND HUNTERS POINT

AN INDIAN WOMAN GRINDING ACORNS AND SEEDS.

AN INDIAN WOMAN GATHERING ACORNS.

(woodcuts by Charles Nahl)

SUNNYDALE/YOSEMITE AND HUNTERS POINT

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NATURAL SETTING

Introduction

The proposed Sunnydale/Yosemite and Hunters Point facilities occupy four distinct geographical areas, separated by existing sewer routes, notably the Hunters Point and Candlestick Tunnels. The Sunnydale/Yosemite facilities and routes (designated 2A-1 amongst the several alternative plans studied in the Preliminary Cultural Resources Survey) occupy three low-lying areas separated by high hills: 1) the area south of Visitacion Knob (the Candlestick Point hill) between the shoreline and the Southern Pacific main line tracks to the west; 2) the Yosemite Canal/South Basin area (frequently referred to as the Bay View area in the following report); 3) the area that was once the southern marshland border of Islais Creek, along Custer, Third, Evans, and Fairfax, and that until recently would have been called Butchertown. The proposed Hunters Point sewer traverses a route along a portion of the north shore of Hunters Point.

For the most part, these proposed facilities are laid out in what was originally lowland or salt marsh locations. The present ground level is higher than it once was because of landfilling. Again, most of the proposed facilities reach excavation depths sufficient to penetrate to the bottommost level of any deposit of cultural materials. There are exceptions to these generalizations, however, and part of the purpose of the following description of the natural site is to specify where land changes have removed possible cultural deposits.

The 1852 U. S. Coast Survey

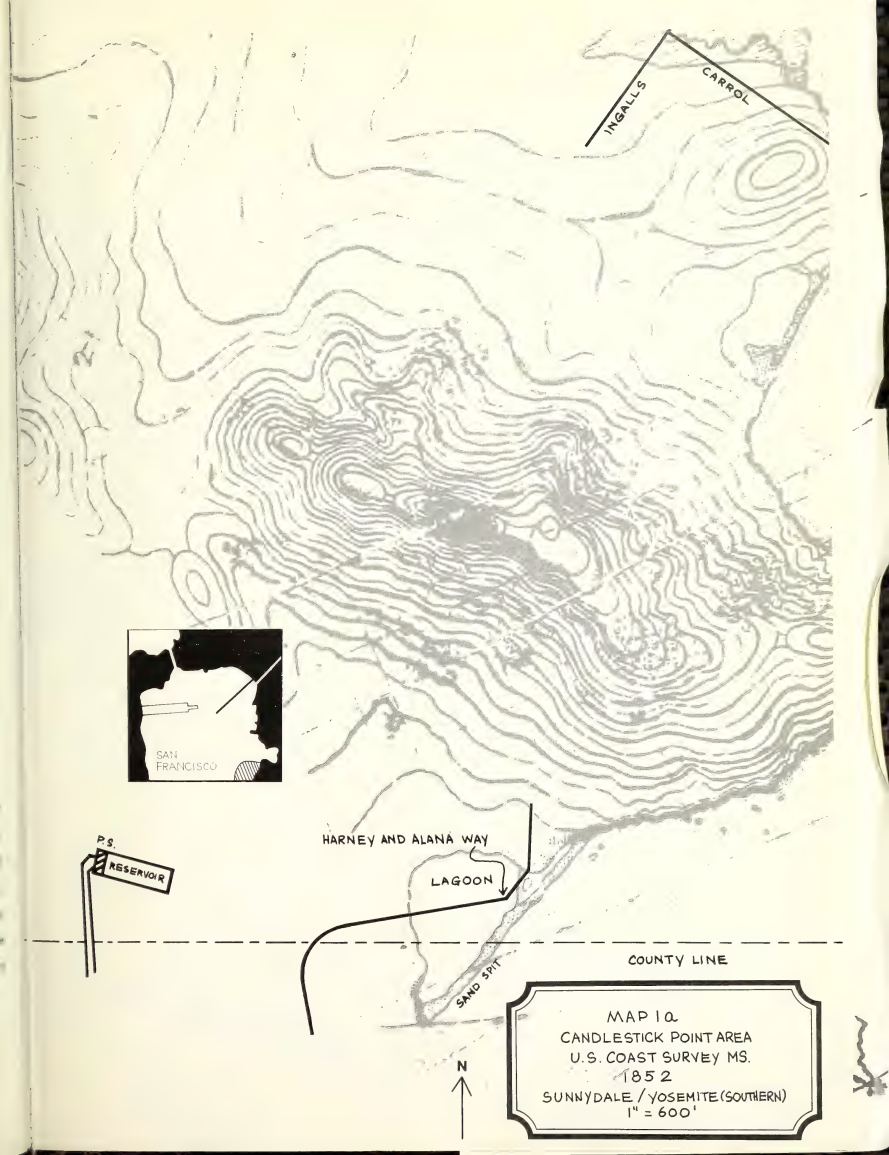
It is remarkably fortunate that the first highly accurate topographic survey of San Francisco was completed by the United States Coast Survey in February of

1852, before any man-made changes of importance had been accomplished south of the booming Gold Rush settlement centered on Yerba Buena Cove. It is doubly fortunate that the manuscript version of the map--the actual field plane-table sheet--is extant, for the versions published in 1852 and 1853 did not include the unpopulated and undeveloped area south of Mission Bay, although the surveyors had completed their work southward to Candlestick Point.

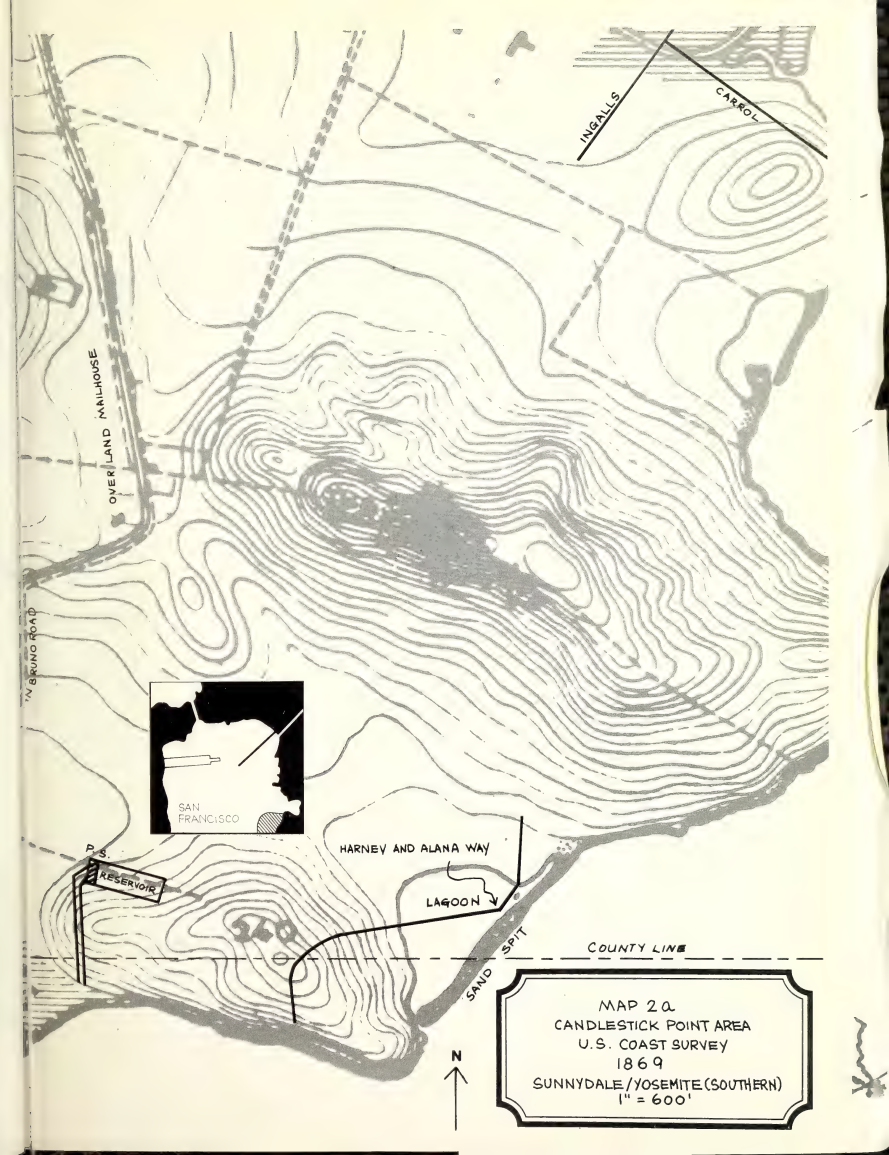
The Coast Survey was in the 1850's (and subsequent decades) perhaps the outstanding mapping agency not only in the United States, but in the world. The 1852 survey is a magnificent piece of work, and field experience over the past four years with the Clean Water Program, the Yerba Buena Center, and the Levi's Plaza project have confirmed the general accuracy of predictions of depths derived from a reading of the equal elevation lines of this map (and its derivatives). Yet it must be pointed out that the technique of plotting the contours contained flaws corrected in the 1857 and later surveys. These flaws consist of attempts to show saddles or gullies. Sometimes the attempts clarify the topography, but sometimes they introduce lines susceptible to misinterpretation. For this reason, reference to the published 1857 and 1869 surveys is often helpful in ascertaining elevations. It is regrettable that the 1857 survey manuscript extends no further south than Islais Creek. The 1869 survey was published at the less detailed 1:40,000 scale instead of 1:10,000. The 1:10,000 manuscript sheet comprising the entirely new part of this survey--the south-central area of San Francisco--is somewhere matched by updated tracings of all the other areas of the city to the same scale, but we have never been able to assemble a complete set and, therefore, must rely on the somewhat less satisfactory published sheet.

Candlestick Tunnel to Alana Way and Sunnydale Sewer (Map 1a)

The original topography of the locations in the Candlestick Point area where the proposed facilities are to be built was very different from that of today. The western portion of the projected excavations, associated with the pump station and reservoir and their connection to the existing Sunnydale sewer line, lies in an area once occupied largely by a hill east of the present 101 Highway that has been all but removed. As a result of the extensive prior cutting, the potential for archaeological remains in this portion of the facilities' excavations appears to be negligible.



MAP 10
CANDLESTICK POINT AREA
U.S. COAST SURVEY MS.
1852
SUNNYDALE / YOSEMITE (SOUTHERN)
1" = 600'



MAP 2a
CANDLESTICK POINT AREA
U.S. COAST SURVEY
1869
SUNNYDALE/YOSEMITE (SOUTHERN)
1" = 600'

The eastern half of the proposed 2A-1 alignment, extending from the Candlestick Tunnel southward, represents an entirely different situation. The route of the proposed excavation--which drops up to 15 feet below city base--traverses the flats at the base of Visitacion Knob (the Candlestick Point hill) and crosses what was once a shallow lagoon and a portion of the sandspit separating the lagoon from the Bay.

Landfill has made the present ground level of this segment higher than the original grade, and this filling has protected the remains of a prehistoric site, discussed in a subsequent section.

Yosemite Canal Facilities (Map 1b)

The transport/storage facilities in the Yosemite Canal-South Basin district lie largely in areas filled since the 1852 Coast Survey. The Coast Survey manuscript map (Map 1b) clearly shows the original landscape to be transected by the sewer. Along Ingalls Street, the alignment crosses the marsh from dry ground on the south to dry ground on the north. The parallel alignment on Griffith Street again bridges a lagoon and marsh before returning to higher ground. In both cases, even the high and dry ground at the extreme north and south ends had an original (1852) grade level lower than the present street elevation.

The Hills on Carroll and Thomas Avenues. The east-west facilities alignments, on Carroll and Thomas avenues, traverse hills that have since been cut away as well as marshlands and sections of the Bay. The western ends of Carroll and Thomas avenues were originally laid out over substantial knobs that marked the northern and southern points of the central indentation of South Basin. In comparing the 1852 U.S. Coast Survey Map with the current street levels, it will be found that on Carroll Avenue from about 100 feet east of the eastern line of Griffith to the eastern line of Hawes Street the present grade level is below the original ground surface--**i.e.,** the hill has been cut away in this area. The extensive series of accurate historical maps of the hill show no dwellings that might have had privies or trash pits in the line of the street. Nor is there any indication that any wells were in the line of the street.

Thomas Avenue poses a similar situation. The street was cut through the hill from a point about 75 feet west of the western line of Griffith to 80

feet east of the eastern line of Hawes. Like the hill near the end of Carroll Avenue, the Thomas Street hill was cut down in the 20th century. Photographs as late as the 1920's show cattle grazing on its slopes.

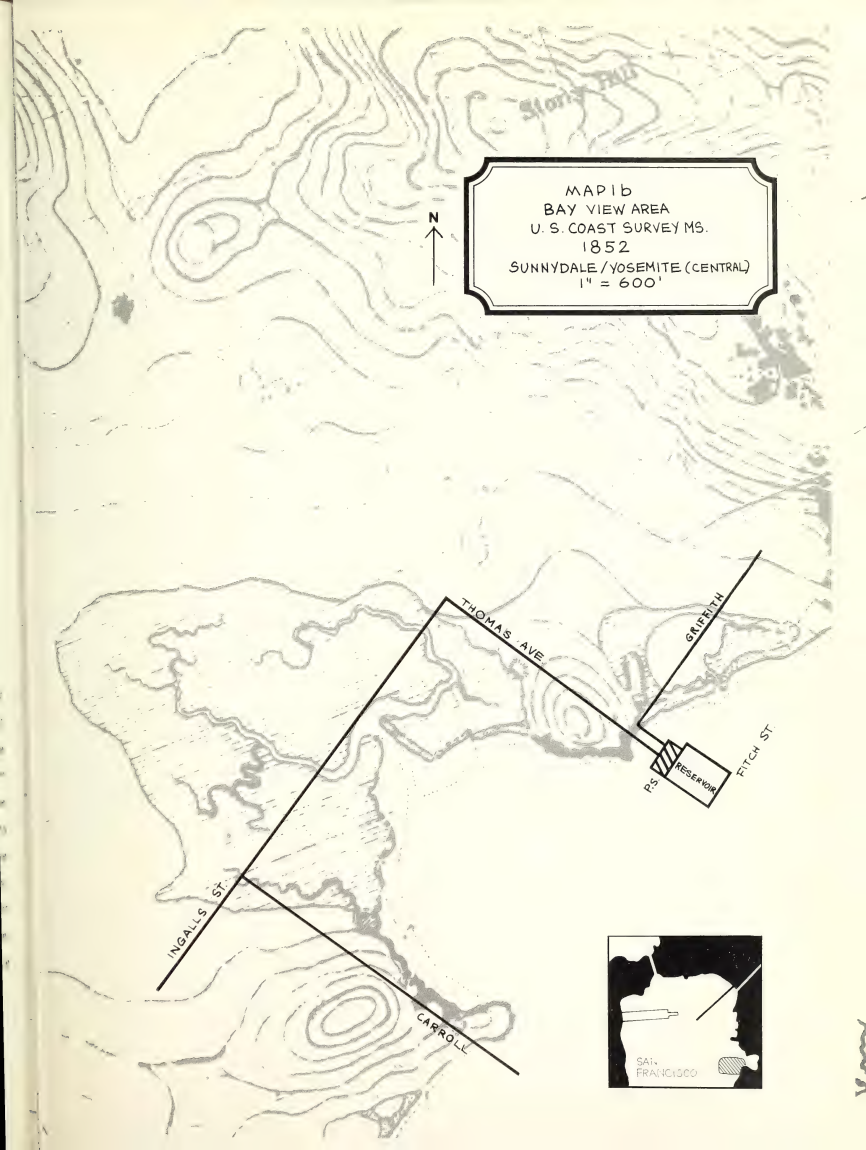
Sunnydale/Yosemite Facilities near Islais Creek (Map 1c)

What may be described as the northern segment of the proposed Sunnydale/Yosemite facilities consists of a sewer from 90" to 78" in diameter, requiring excavation to about 24 feet below city base on Custer Avenue to nearly 12 feet at its western terminus on Fairfax Avenue. The deeper part of the proposed excavation is in what was in 1852 shallow water beyond the low tide line on Custer Avenue from about 30 feet east of Quint Street to present day Third Street. Along Third Street to Evans Avenue, and along Evans to Newhall Street, the alignment traverses the original mud flats between the mean low tide line and the high tide line at the edge of the salt marsh bounding the south side of the estuary of Islais creek, as shown on the 1852 map (Map 1c).

At the southerly edge of Evans Avenue, the Newhall Street leg traverses a section of the marsh, as does about the first third of the alignment on Fairfax Avenue. The point at which the Fairfax alignment crosses the boundary between the marsh, as shown in 1852, and dry land is approximately 600 feet west of the eastern end of the proposed excavation.

Hunters Point Facilities (Map 1c)

The surface elevation of the Hunters Point sewer alignment at present is almost entirely at or below the surface level in 1852, except for a small portion about 1000 feet east of the Mendell Street Interceptor at the western end of the alignment. All of it traverses what was dry land, except for two very short sections projecting beyond the high tide mark. One of the points is at the eastern end of the alignment at Keith Street, where the alignment appears to project a few feet into the area of original tidal range. The other is at the southeastern end of the portion of the alignment using the P.G.&E. right-of-way, where the alignment turns abruptly westward to the line of Hunters Point Boulevard. Neither of these points is more than 25 feet from the shoreline, which in turn is within the margin of plotting error for the maps used. The


MAP 1b
BAY VIEW AREA
U. S. COAST SURVEY MS.
1852
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 600'
N
THOMAS AVE.
GRIFFITH
RESERVOIR
P.S.
FITCH ST.
INGALLS ST.
CARROLL
SAN FRANCISCO

CUSTER

3RD ST.

EVANS

NEWHALL

FAIRFAX

HUNTERS POINT ROAD

Stony Hill

GRIFFITH ST.

MAP 1C

HUNTERS POINT

U. S. COAST SURVEY MS.

1852

SUNNYDALE / YOSEMITE (NORTHERN)

AND HUNTERS POINT

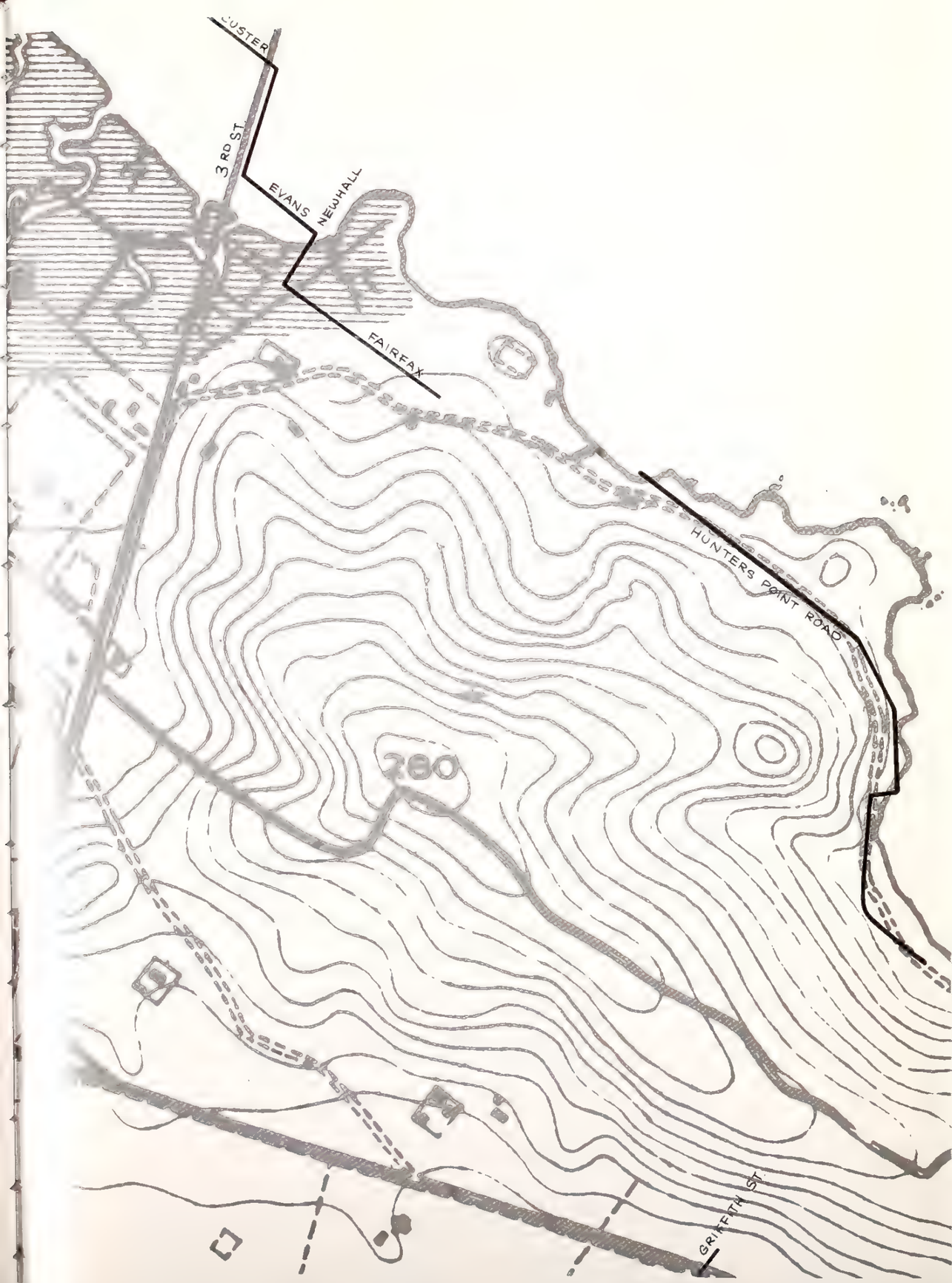
1" = 600'

N

HUNTERS POINT

3823350

MAP 2b
BAY VIEW AREA
U. S. COAST SURVEY
1869
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 600'
N
280
(3RD ST.)
RAILROAD AVE
HUNTER'S HSE
GRACE 11TH ST.
THOMAS AVE
P. S.
RESERVOIR
FITCH ST.
INGALLS ST.
CARROLL
SAN FRANCISCO



N

MAP 2C

HUNTERS POINT
U. S. COAST SURVEY
1869
SUNNYDALE/YOSEMITE (NORTHERN)
AND HUNTERS POINT
1" = 600'

Hunters Point alignment roughly follows the old road line out along Hunters Point. This line follows the shore, except that portion approximately 600 to 1200 feet east of the Mendell Street Interceptor. Here it passes several hundred feet inland, between the main hillside to the south and a small knob occupying a promontory of Hunters Point called "Stony Hill" on the early Coast Survey maps.

PREHISTORY

Bay Prehistory as It Relates to the Bayside Impact Area—M. Purser and B. Butler

In order to understand more fully the impact and possible results of impact to prehistoric and post-contact sites that may lie in the project area, it is necessary to give a short review or summary of the prehistoric archaeological work that has been done within the city of San Francisco. (For recent extended treatments of the topic, encompassing the entire San Francisco Bay Area, as well as the Bay Area's place in the early development of the techniques of stratigraphic excavation and the role of local findings in the California prehistoric chronology debate, see Wirth Associates' **Potrero 7: Phase I: Cultural Resources Overview and Inventory**; Suzanne Baker, **Report on the Fort Mason Archaeological Test Excavations**; and Polly Bickel, **Toward a Prehistory of the San Francisco Bay Area: The Archaeology of Sites Ala-328, Ala-13, and Ala-12.**)

Because San Francisco developed so rapidly into a urban center, its prehistoric record is not well documented. Great alteration of the landscape and environment had already occurred when the first efforts at documentation began. Again, there is little ethnographic information available on the aboriginal inhabitants of San Francisco, because they were more rapidly acculturated than groups to the north and east. To create a coherent picture of San Francisco prehistory, and to place San Francisco within the extended prehistoric region of the Bay, a great deal more information is needed. And information from within San Francisco itself has until recently been scarce and fragmentary.

The first major project in San Francisco prehistoric research remains a primary resource for the whole Bay Area. This is the survey of some 425 shell heaps scattered around the bay that was conducted in 1908 by Nels C. Nelson. According to Nelson's map on file at the Lowie Museum of Anthropology, some nine sites fall within the impact area, of which seven lie along various alternative routes. These are SFr-7 (Nelson 387), SFr-8 (Nelson 388), SFr-9 (Nelson 389), SFr-11 (Nelson 390), SFr-16 (Nelson 395), SFr-17 (Nelson 394), and SFr-18 (Nelson 393).

There are difficulties in using Nelson's published map and accompanying records. Not only does the scale of the map allow only general location of the sites, but many of the accompanying site reports are now missing. Consequently, while approximate locations can be given for the sites, their content and condition at the time of discovery is sometimes unknown. Of the sites listed above, only SFr-17 (Nelson 394) still has a site report recorded. Recently, efforts have been underway to rediscover Nelson sites in the San Francisco area. So far, two sites have been found, which may be SFr-16 (Nelson 395) and SFr-18 (Nelson 393). If so, these two would flank SFr-17 (Nelson 394). All three of the sites are located on the ground to the southwest of the tidal estuary of old Islais Creek (Mark Rudo, personal communication, 1980).

In 1969, a skeleton was discovered during the construction of the BART Civic Center station. The remains were found at a depth of 75 feet (Winfield, Jackson, and Schlocker 1972: 208). Four other important San Francisco sites are SFr-26, where human skeletal fragments were discovered at the Presidio during a construction project in 1972 (Nelson 397), SFr-21, and SFr-24. Small deposits were found in 1976 at the Sutro Baths on Point Lobos (Baker 1978: 9). Also, in 1970 a small shell midden near San Francisco State University was recorded by Dietz and Jackson (Wirth Associates, **Portrero 7: Phase** I, 1979: 15). Three sites were excavated in 1978 at Fort Mason, which yielded rich artifact assemblages and faunal remains. Further analysis of the material from these sites should add considerably to the amount of cultural information available for the area (Baker 1978: 140).

A major site in San Francisco that has been excavated several times and that lies within the impact area is SFr-7 (Nelson 387), south of Hunter's Point. This site is variously known as Crocker Mound, Bayshore Site, and Johnson's Landing. Nelson's original notes for the site still exist. In terms of location, Nelson records that the large mound "lies on the northern edge of the lagoon

and extends beyond the present branch out into the bay" (Nelson in Wirth Associates, **Portrero 7: Phase I**, 1979: 19). The mound was rich in burials and artifacts.

In addition to these known sites, Wirth Associates' **Portrero 7: Phase I** report points to a general sensitivity to prehistoric sites within the Sunnydale/Yosemite impact area itself. The report quotes the work of a local historian who recounted in 1929 the many burials and artifacts discovered by local residents (Wirth Associates, **Portrero 7: Phase I**, 1979: 20).

Lack of well-documented information makes analysis of San Francisco prehistory difficult. With the exception of the Fort Mason sites and the old work at SFr-7, the results of excavations tend to be fragmentary. Often sites are not discovered until they are disturbed in the course of construction projects. That documentation which does exist indicates that the Bayside Facilities project area has a high potential for prehistoric sites existing within its boundaries. This would make any site encountered in the area extremely significant for its possible contributions to Bay Area prehistory.

Prehistoric Data for the Impact Area

Locational Data: Some of the earliest site descriptions for the Bay Area were included in Nelson's publication of the results of his survey (Nelson, 1909). It is important to recognize a bias in the information provided there, which Nelson himself explains. His survey was restricted to shellmounds, as opposed to earth mounds. Nelson saw the earth mounds as a later cultural manifestation, and not as significant as the shellmounds to his study of the early periods of settlement. Analysis of data compiled after his study would seem to indicate the reverse is true (Bickel, 1976: 15). Whatever the actual order, the result was that Nelson limited his survey to the regions where the shellmounds were found in "a narrow belt around the open waters of the bay" (Nelson 1909: 322). The unrecorded earth mounds ranged farther inland. Nelson focused his survey on the entrances of the streams into the bay, but predicted the existence of more mounds farther upstream toward the various sources (**Ibid.**: 310).

The "typical shell heap of the San Francisco region" was defined as "oval or oblong in outline, with smooth slopes, steepest, of course, on the short transverse diameter; and the longer axis is generally parallel to the shoreline or stream to which the pile may be contiguous" (**Ibid.**: 328). The presence of water nearby is definitive, as is the tendency of the shellmounds to be near sea level (**Ibid.**: 329).

Some of the mounds Nelson located were, in fact, below sea level. He attributed this to the effects of subsidence, common in the bay area. Max Uhle, also working on bay shellmounds in Nelson's time, noticed the same phenomenon, which he also attributed to the "sliding motions" (Uhle, 1907: 11). Nelson notes that sites once on the shoreline seemed in some cases to have become engulfed by the surrounding marsh, and were occasionally "deeply imbedded in the silt itself" (Nelson, 1909: 317). Two further remarks made concerning location were that strategic or defensive positioning did not seem to be criteria for settlement and that, in sequences of sites along a stream, the largest site was usually "at the lower end of the series" (**Ibid.**: 328).

Nelson was somewhat updated by Gifford in 1916. Gifford found no evidence for Nelson's theory that sites covered by the marsh were laid down before the formation of those marshes, in terms of carefully analyzed mound content. It was Gifford who argued against any "sweeping physiographic changes" between the time of prehistoric settlement and the arrival of European settlers (Gifford 1916: 8). Where Nelson saw evidence of such a change in the succession of different shell species within the middens, Gifford attributed this to changes in exploitation of the environment by the local inhabitants (**Ibid.**: 9-10). This particular controversy is not yet resolved (Wirth Associates, **Portrero 7: Phase I**: 17).

More recent site descriptions containing locational data include Polly Bickel's thesis **Toward a Prehistory of the San Francisco Bay Area** (Bickel 1976), and the survey report on cultural resources for Wildcat and San Pablo creeks in Contra Costa county, prepared by Peter Banks and Robert Orlins for California Archaeological Consultants, Inc. (California Archaeological Consultants, 1979). Bickel worked with four sites on the eastern shore of the bay in Alameda County. Again the major locational aspect of the sites is proximity to water. Bickel notes that there is a good possibility of freshwater springs occuring in the area during occupation of the sites, and that the nearby marshes extended farther into the hills at that time (Bickel 1976: 27-28). "It appears that each of the four archaeological sites was situated at or within one or two hundred yards of a marshy area" (**Ibid.**: 28). Furthermore, Alameda Creek is within three miles of the sites, with meanders coming closer. However, "prehistoric distribution of tributary channels of Alameda Creek and of other ephemeral streams in the area is unknown" (**Ibid.**: 28). Nelson's assumption of proximity to sea

level is upheld: "the four sites lie between approximately four and six feet above sea level" (**Ibid.**: 23).

Banks and Orlins' survey of Contra Costa sites reports that "almost all of them were situated near major drainages or along the bayshore" (California Archaeological Consultants 1979: 3.52). Defining ecological zones in terms of exploitable environment, the survey finds that sites tend to occur "at or near the transition between" these zones (**Ibid.**: 3.54). These zones include foothill woodlands, coastal prairie on the alluvial plain, freshwater creek environments, rocky headlands, shoals and offshore islands, brackish or freshwater marshes, and saltwater marshes (**Ibid.**: 3.53).

Specific sites closer to the impact area than these in the East Bay provide similar information. Analysis of the clayey silt removed from the BART Civic Center site skeleton indicates a marshland environment at the time of deposit, with both salt and freshwater organisms present. This skeleton has been carbon-dated to 4900 $\pm$ 250 B.P. (Winfield, Jackson and Schlocker 1972: 209). The remains were found in a layer of clayey silt, which was overlain by a sand dune, which in turn was overlain by a layer of artificial fill. The location of the skeleton was 26 feet below mean sea level (**Ibid.**: 208).

The one remaining site report for Nelson sites within the Sunnydale/Yosemite area, SFr-17, indicates that the site is located "across the marsh from Alemany Boulevard, just west of its junction with Bayshore" (University of California Site Survey Record, Berkeley). Mark Rudo and Leo Barker's search for Nelson's sites has turned up evidence of mounds on either side of SFr-17 which are likely to be the missing SFr-16 and SFr-18. The three are lined up near the bottom of the slopes that descend to the creek when plotted on the 1869 map of the area. Furthermore, the site report for SFr-17 states that the "base of mound is on yellow sand" and that "the mound was started on a sand dune" (University of California Site Survey Record, Berkeley). One burial was found on this site in 1951.

The site descriptions listed above were chosen because their study areas resembled that of the Bayside Facilities project. They do not exhaust the sources of Bay Area research in prehistory. For an extensive bibliography of that subject, the reader is referred to Michael Moratto's "Anthropological and Ethnohistorical Sources for the San Francisco Bay Region" (**San Francisco State University, Treganza Anthropology Museum Papers**, No. 13, 1974).

Ethnographic Data: The native names for either the aboriginal inhabitants of the city of San Francisco or the rest of the peninsula are unknown. It is known, however, that these people did not form a single ethnic or political group, but were organized into tribelets, each tribelet consisting of one or more villages and a number of camps within a tribelet territory. Each territorial boundary was defined by physiographic features (Levy 1978: 494). At the time of Spanish contact during the late eighteenth century, the Indians were given the name Costanoans, which is derived from "Costanos," the Spanish word meaning coast people. In 1971, the descendants of the various aboriginal coast dwellers united and became the Ohlone Tribe (Levy 1978: 487, 494).

All information concerning prehistoric Costanoan culture or lifeways has been synthesized from two sources. The first comes from accounts gathered by Spanish expeditions made from 1769 to 1776. The second consists of histories gathered by ethnographers who recorded statements made by Costanoan peoples from 1900 to 1935 (**Ibid.**: 495).

The concern of this report is to define the locations or possible locations of Costanoan habitations and not to present a complete ethnography of their culture. Therefore only those references that cast light on the problem have been included. Richard Levy in his paper "Costanoan," in Volume 8 of the **Handbook of North American Indians** (Levy 1978: 485-495), presents a detailed look at Costanoan lifeways, and the reader is referred to it for more extensive data.

The most relevant ethnographic data found in Levy are references to foodstuffs and Costanoan structures. Molluscs and fish, both freshwater and saltwater, along with various types of waterfowl were important elements of the Costanoan diet (see also Nelson 1909, and Baker 1978). Dwellings were conical houses covered with a woven mat of tule or, on the southern San Francisco peninsula, redwood or redwood bark. These houses were periodically burned and fresh ones built (Levy 1978: 492). Levy also mentions that Costanoan sweathouses, which were generally located along a stream near the village, were constructed "by excavating a pit in the bank of a stream and building the remainder of the structure against the bank" (**Ibid.**).

Information gleaned from the diaries and journals of various members of Spanish exploration parties that visited the San Francisco area provides more locational data on the habitation sites of the Indians.

Plate 1: The earliest known view of "Spanish Establishment of St. Francisco" by G.H. von Langsdorff, member of the Rezanoff party on the Juno, March 28, 1806. (Bancroft Library)

Plate 2: Choris drawing of the "habitants de California" at the Mission...Louis Choris made the finest set of early drawings of the details of the California Indians living in the Mission. Choris was an artist with the Russian exploring expedition that put into San Francisco in September of 1816. [Bancroft]

The first Europeans to visit the San Francisco Bay region arrived in 1769. They were part of an expedition sent by Spain under the leadership of Don Gaspar de Portola. A member of this group of explorers, one Miguel Costanso, recorded the following observations in his diary as the party reached the San Francisco peninsula:

> Several of the soldiers requested permission to go hunting, as many deer had been seen. Some of them went quite a long way from the camp and reached the top of the hills so that they did not return until after nightfall. They said that to the north of the bay they had seen an immense arm of the sea or estuary, which extended inland as far as they could see, to the southwest, that they had seen some beautiful plains studded with trees; and that from the columns of smoke they had noticed all over the level country there was no doubt that the land must be well populated with natives (Costanso 1911: 267).

> We followed the coast of the estuary, although we did not see it because we were separated from it by the low hills of the canyon which we were following in a south-southeasterly direction. We travelled for three leagues. The country was pleasant. The hills of the canyon were crowned with savins, low live oaks, and other smaller trees. There was sufficient pasture. We halted on the bank of a stream of good water. Some of the natives were seen; they invited us to go to their villages, and offered us their presents of seeds and fruits (Costanso 1911: 269).

In 1770, Lieutenant Pedro Fages led a party of explorers from Monterey down the Santa Clara Valley to the head of the bay, then along the eastern shore. Fages noted the following as they neared the San Francisco "port":

> . . .four heathen followed us until we stopped at the head of the estuary of the port of San Francisco, by the side of a river which had some pools of very good fresh water (Fages 1911: 151).

Juan Bautista Aguirre surveyed San Francisco Bay in 1775, under the direction of Lieutenant Ayala of the ship **San Carlos.** His account is mentioned in Bancroft's history:

> Aguirre makes a similar reconnaissance in the southern branch of the bay, noting several indentations with good anchorage; but he encounters only three natives, who are weeping on the shore of what is now Mission Bay, called from that circumstance Ensenada de las Llorenes (Bancroft 1886, Vol. 1: 246-247).

During the month of March in the year 1776, Captain Juan Bautista de Anza and his expedition arrived in the San Francisco Bay region and designated the locations for the Presidio and the Mission (San Francisco de Assís or Mission

Dolores). During the first few month following the construction of the Mission and the Presidio, few Indians were seen. A reason for this may have been an incident of August, 1776, recorded by the missionary Francesco Palou. The tribelet in the area was attacked at one of their towns by people from the village at San Mateo. The local inhabitants then removed themselves to "the shore opposite the Presidio, or to the mountains on the east side of the bay" (Palou in Bolton, 1930: 402-403). Afterwards, only men and boys returned to "this lagoon" to hunt ducks (**Ibid.**).

Father Font, the Anza expedition chaplain, also recorded the following:

> We travelled about three leagues more to the south and southwest (Bolton in a footnote states that Font's shorter diary reads west-northwest here, and that it is evidently correct), and finally, making a turn around the hills, we came out to the plain. In this stretch we found the land good like the rest, and a small spring of water like a well very near the water of the estuary. Some bearded and gentle Indians who live around here came out to see us, and followed us for a short distance. Afterward, now apart from the hill, we came to a small arroyo with very little water, which was called by Father Palou the arroyo of San Bruno (in another footnote, Bolton states that San Bruno was in reality Islais Creek) and near which there were signs of a good-sized abandoned village. Having eaten a bite here, we continued on our way till we struck the road taken on going, along which we travelled a short distance to the southeast (Font in Bolton, 1930: 347-348).

Another member of Anza's expedition wrote:

> Now returning to the explorations which I have made of these lands. . .toward the southeast I have encountered timber sufficient to build commodious houses. . . . Moreover, I saw that the heathen had burned many patches which doubtless would produce an abundance of pasturage. In the rest of the explorations which I have made in the vicinity of the mission and the presidio, I have found good lands, some large lagoons, little arroyos, and innumerable springs of fresh water which are permanent, although the year has been so short of rain (Moraga, in Bolton, 1930: 417).

In their 1979 report on Potrero 7, Wirth Associates record the following quote taken from Brown's 1973-1974 articles in **La Peninsula: Journal of the San Mateo County Historical Association** on the Indians of San Mateo County:

> The only organized settlement mentioned in the Mission records is the 'village of the Dolores **Chuchui** and **Siscastac** and **Sitlintohc** 'at the end of the woods running towards the outlet of the lake here at the Mission,' and the community headed by the 'chief of the

> Presidio shore'. . .Equally insignificant places were **Petlenuc** 'close to the old camp,' **Shiti** 'towards the big creek' (Islais Creek?) and **Ousint** 'in the mare pasture **(potrero de las vequas)**. The last named is today Potrero Hill, at that time a peninsula. . .(Brown in Wirth Associates 1979: 28).

It is evident from the preceding accounts that at the time of contact a substantial Indian population called the San Francisco peninsula home. The various missionaries and military personnel quoted also establish the fact that the San Francisco area was dotted with numerous freshwater springs as well as lagoons and arroyos.

These accounts point to two specific locations within the project area as being likely to contain prehistoric Costanoan material. The first area is that around Mission Bay. Aguirre and Palou mentioned the presence of natives in the Mission Bay and the Mission Creek areas around Mission Dolores. Moraga also mentioned the presence of large lagoons and freshwater springs in the area surrounding the Mission. The second area is around Islais Creek. Font recorded the presence of a large abandoned village in the vicinity of the creek, while Brown notes the existence of a named settlement, Shiti, somewhere near it. It is possible that the settlements mentioned in either of these accounts correspond to those recorded by Nelson in 1909, specifically SFr-16 (Nelson 395), SFr-17 (Nelson 394) or SFr-18 (Nelson 393).

From 1769 to 1822, Spain retained control over California and built a chain of 21 missions from San Diego to Sonoma, of which seven were established within Costanoan territory. These **reducion** missions were used by the Spanish to establish control of the natives and their territory using the **encomienda** system, meaning Indian labor used by Spanish citizens for the public good (Castillo 1978: 99).

The introduction through these missions of European diseases, slavery, new dietary practices, and ultimately a general and thorough disruption of traditional tribelet living groups resulted in rapid population decreases among the Indians through death and a declining birth rate. By 1830 there was a virtual disappearance of traditional Costanoan lifeways (Chavez and Ramsey 1979: 14-15; Castillo 1978: 99-104). Even though Mexico gained control of California in 1822, the mission system continued in operation in the same fashion as it had under the Spanish until the missions were formally secularized during the period from 1834 to 1836 (Castillo, 1978: 104-105).

Archaeological investigations of protohistoric aboriginal sites (defined as those in existence after contact) and aboriginal historic sites (defined as those in existence from the time of Spanish missionization until the completion of secularization) have been nil. Chester King makes the following statement: "The state of knowledge of protohistoric and historic California archaeology is limited due to a general lack of intensive archaeological investigations and failure of archaeologists to distinguish protohistoric archaeological components from earlier components" (King 1978: 58). In addition to this lack of distinction between prehistoric and protohistoric and historic Costanoan sites, there has been a failure on the part of archaeologists to investigate this period. Instead, investigations have focused on the Spanish mission structures and the Mexican adobes.

The mission policy forcefully created new habitation groups out of the culturally and linguistically distinct aboriginal groups. This was reflected in the establishment of multi-ethnic Indian communities near the missions, some of which continued to exist during the time of Mexico's takeover and secularization of the missions. The archaeological investigation of aboriginal sites dating from this time could possibly enhance our knowlege of intra-Indian relations as well as Indian-European ones.

The Major Shellmound Sites—Sunnydale/Yosemite

The first portion of the Phase II intensive archival survey of selected Bayside Facilities alternatives to be undertaken was the study of the certain sites located by Nels C. Nelson around 1908-1910, together with an unrecorded but cartographically intriguing site discovered during the Preliminary Survey.

The map published by Nelson in 1909 of the shellmounds he had noted in the Bay Area was sufficiently imprecise to leave open the possibility that more than one of his identified sites might be subject to impact by Sunnydale/Yosemite alternative 2A-1. That the selected route would transect Nelson #387 (SFr-7) seemed very likely.

The major part of the research and analysis contributing to the following report was accomplished by Jack Prichett and Roger Olmsted, Prichett dealing with the archaeological research and Olmsted with the impact probability and report preparation. The early undertaking of this specific report on one element of the probable cultural resources of one part of the proposed Bayside Facilities was the result of the researchers' conviction that the probability of sewer construction impacting sites of National Register significance was extremely high.

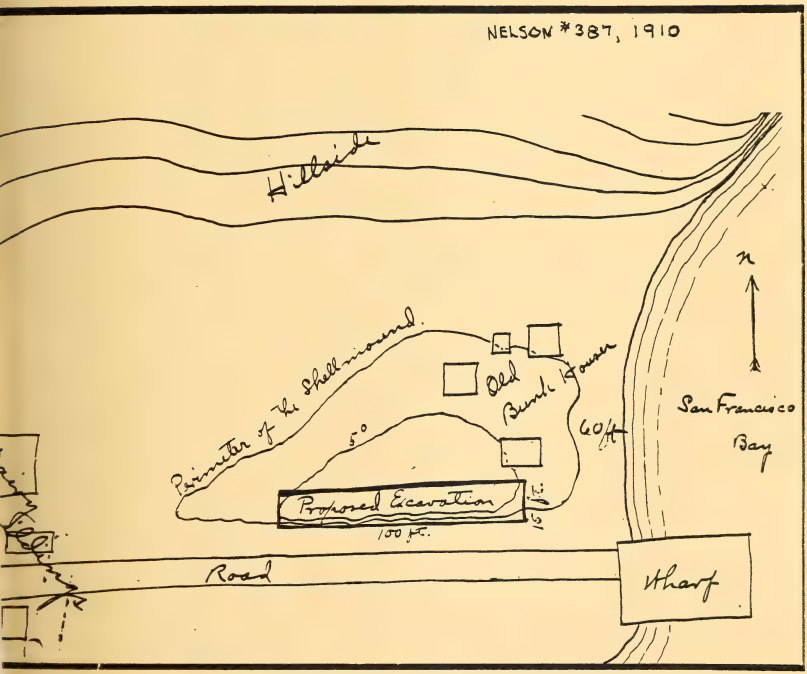
It should be noted that despite the research into Nelson's notes, photographs, and sketch maps, one important Nelson document was not located in November. This was a Geological Survey map upon which Nelson had spotted the Bayside area mounds he had observed. Peter Banks, of California Archaeological Consultants, Inc., copied the site locations shown on this sheet prior to conducting a field testing program for a private developer (The Campeau Corporation) in the area of Nelson #387 in January, 1981. As the result of

visiting the field testing operation and discussing and comparing evidence regarding various aspects of the Nelson sites, Olmsted was able to eliminate Nelson #387a (SFr-10) as a site subject to any possible impact by the proposed sewer facilities. The more specific site map places Nelson #387a on the south, rather than the north slope of Visitacion Knob (Candlestick Point). As will be seen later, the primary target sites, SFr-7 and the unrecorded Griffith & Shafter mound, have proved as large or larger than could have been predicted by cautious appraisal, both with respect to lateral area transected by the proposed alignment and vertical transect of intact cultural deposits.

The **Research Design to Locate Nelson Shellmounds** has been included with its plates and maps intact and numbered as it was originally produced for the San Francisco Clean Water Program in November of 1980. The document facilitates understanding of the location of these important cultural resources, and as such it deserves a wider audience than received by the original 15 copies circulated only as in-house documents.

RESEARCH DESIGN TO LOCATE NELSON SHELLMOUNDS

SUBJECT TO IMPACT BY SAN FRANCISCO SEWER ROUTE 2A-1



By: Resource Consultants
Roger & Nancy Olmsted,
Historians

Archeo-Tec
Dr. Allen Pastron
Jack Prichett,
Archaeologists

FOR SAN FRANCISCO CLEAN WATER PROGRAM - November 1980

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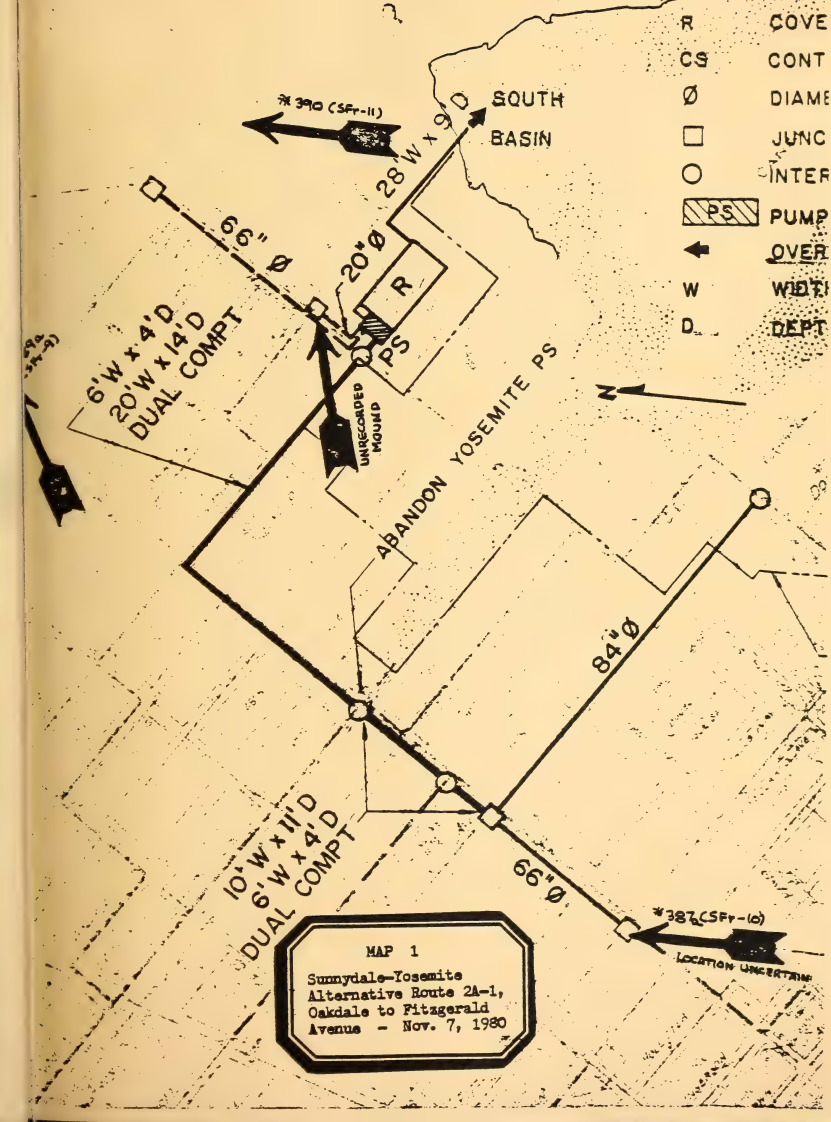
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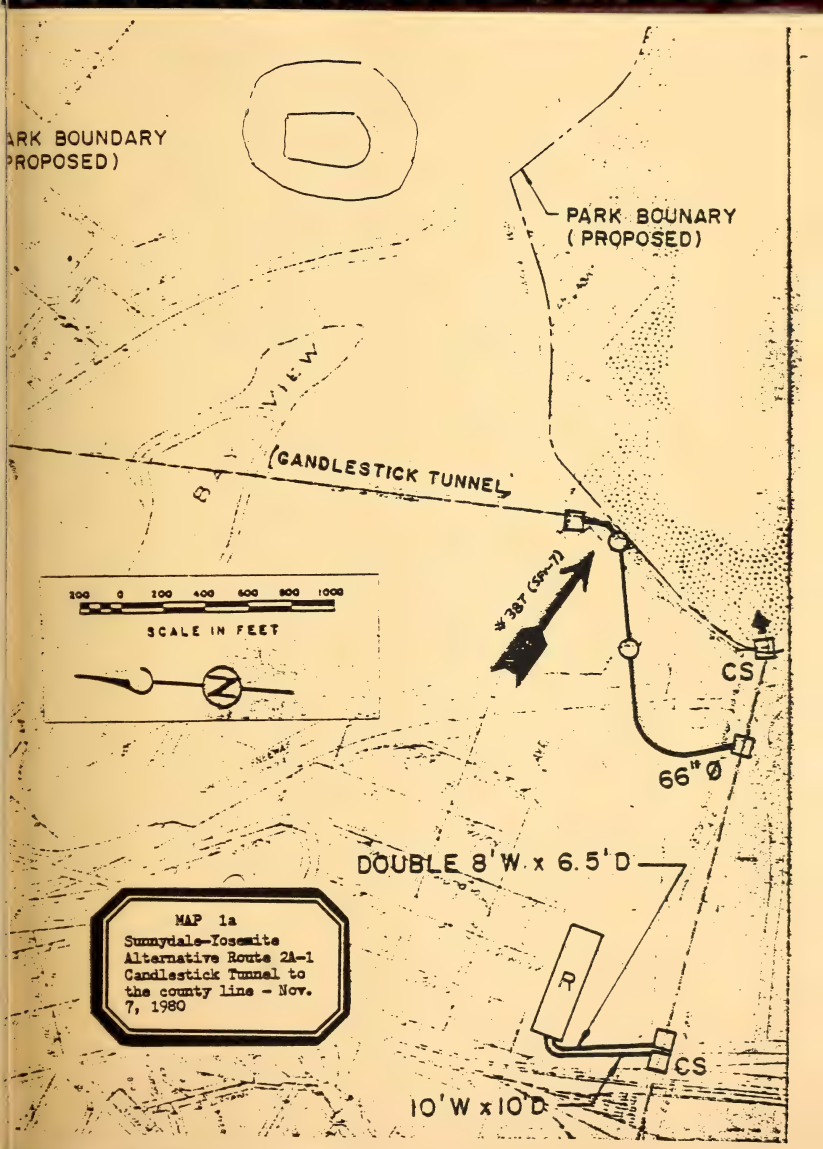
#390 (SFr-11)
SOUTH
BASIN
28'W x 9'D
66"Ø
20"Ø
R
PS
6'W x 4'D
20'W x 14'D
DUAL COMPT
UNRECORDED
MOUND
ABANDON YOSEMITE PS
84"Ø
10'W x 11'D
6'W x 4'D
DUAL COMPT
66"Ø
#387 (SFr-10)
LOCATION UNCERTAIN
MAP 1
Sunnydale-Yosemite
Alternative Route 2A-1,
Oakdale to Fitzgerald
Avenue - Nov. 7, 1980


ARK BOUNDARY
PROPOSED)
PARK BOUNARY
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SCALE IN FEET
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DOUBLE 8'W x 6.5'D
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10'W x 10'D
MAP 1a
Sunnydale-Yosemite
Alternative Route 2A-1
Candlestick Tunnel to
the county line - Nov.
7, 1980

SUMMARY...Potential Impact of Alignment 2A-1 on Prehistoric Mound Sites

Location of Sites: Four prehistoric shellmound sites that were identified or investigated by Nels C. Nelson in 1909, but not located on his published map in a manner that established with reasonable accuracy probability of impact by the construction of Alternative 2A-1, have been more specifically located relative to probable impact. In addition, another apparent shellmound site, not recorded by Nelson, was located on the 2A-1 alignment.

Sites Transected by the Alignment: Nelson Site #387 (SFr-7) is transected by the 2A-1 alignment between the control structure at the southern end of the Candlestick Tunnel and a point at least 100-150 feet to the south. The control structure may fall within the perimeter of the site. The depth of planned excavation is sufficient to impact any remains of this site, from which Nelson, in a partial excavation, recovered 23 burials. Almost certainly, additional mound material was removed for commercial uses in the past. However, the depth of the deposit and subsequent raising of the surface level by fill make it likely that significant portions of the prehistoric deposits remain.

Nelson Site #387-a (SFr-10), remains undefined as to the exact location. The site could be impacted by 2A-1 at the southern end of the leg of sewer excavation that terminates at Fitzgerald and Ingalls. The prior impact of commercial exploitation is a probability in the case of this site, as in all of the shellmound sites covered in this report. The probability of significant remains, protected by filling, is also high in all the cases examined in this report.

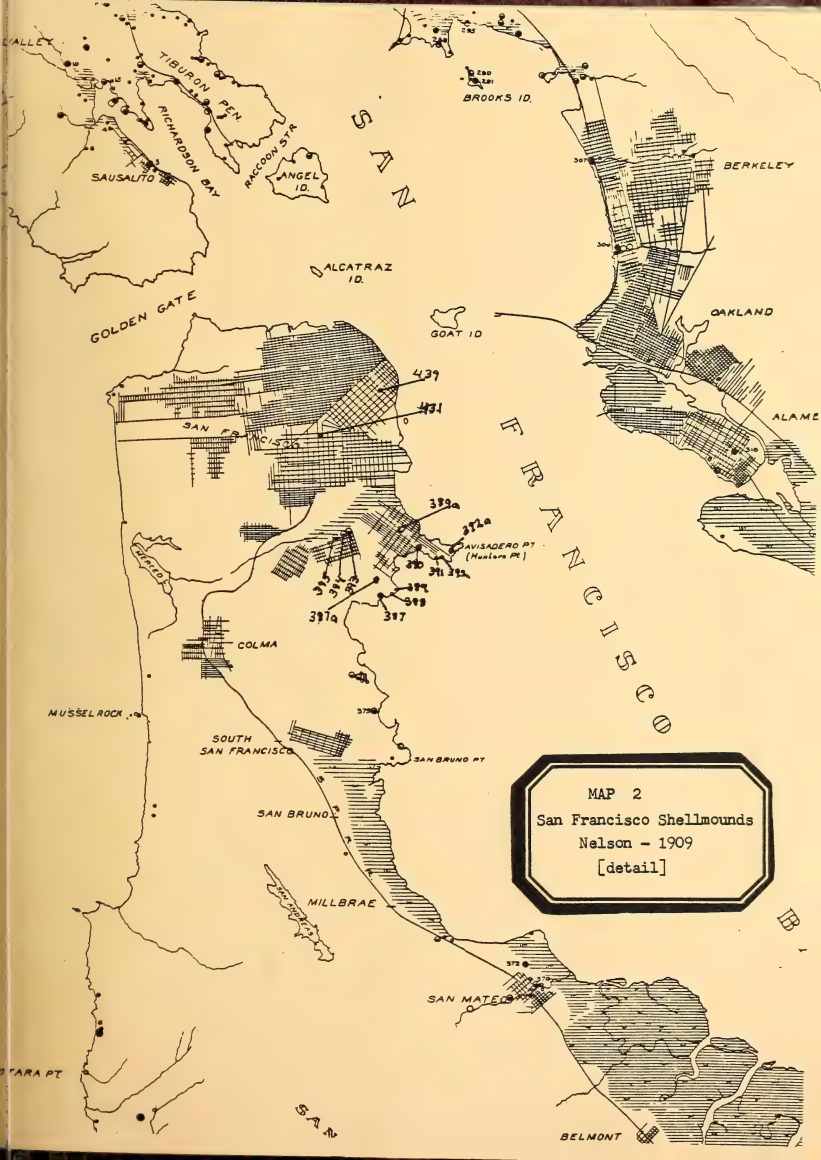
The unrecorded probable site, identified from the 1852 Coast Survey manuscript map, at Griffith and Shafter, is definitely transected by the alignment at a depth sufficient to impact any remains. The zone of impact is from the southern side of the intersection of Griffith and Shafter to a point about 100 feet southward on Griffith. The same probabilities of prior impact, and partial but significant remains, obtain.

Nelson Sites #390 (SFr-11) and #389-a (SFr-9) have been definitely located at such distance from the 2A-1 alignment as to preclude impact.

Recommendations: A preconstruction field testing program of mechanical borings, designed to physically establish the presence or absence of shellmound materials along the planned alignment within the areas of possible and probable impact identified above, is outlined in detail in the "Research Design" and "Recommendations" sections of this report. This Phase I field program is essentially an inexpensive 2-3 day exploration.

If archaeological deposits are encountered in Phase I, a Phase 2 program, designed to determine the boundaries and cultural contents of such sites, is outlined in the "Recommendations."

It is recommended that the field program be undertaken at an early stage in the detailed 2A-1 design program, rather than at some point close to commencement of construction. For instance, field testing information could show that a design location crossing sensitive burial sites could be avoided by minor design adjustment in the alignment.


TIBURON PEN.
RICHARDSON BAY
SAUSALITO
RACCOON STR.
ANGEL I.
BROOKS I.
BERKELEY
ALCATRAZ I.
GOLDEN GATE
GOAT I.
OAKLAND
SAN FRANCISCO
439
431
389a
372a
AVISADERO PT. (Mussel Pt.)
385
391
393
394
399
397
391a
COLMA
MUSSEL ROCK
SOUTH SAN FRANCISCO
SAN BRUNO PT.
SAN BRUNO P.
MILLBRAE
SAN MATEO
BELMONT
MAP 2
San Francisco Shellmounds
Nelson - 1909
[detail]

THE NATURAL SITE

Of the 16 prehistoric sites in San Francisco recorded by N.C. Nelson in his Shellmounds of the San Francisco Bay Region, published in 1909, when large areas of the city lay still undeveloped, all but two lay in the Hunters Point-Candlestick Point-Islais Creek region, in the area of the Bayside Facilities Project development. This disproportionate number of sites identified in this region is certainly in part due to the earlier filling and building activity in the Mission Creek-Mission Bay area (including the Potrero and Steamboat Point) to the north, an area also originally characterized by fresh water sources, tidal inlets, and marshlands.

In the course of identifying some 425 shellmound sites in the Bay Region, Nelson noted, "Certain definite physical conditions, such as the presence of fresh water, timber, shelter from the wind, and easy access to the sea shore, appear to have controlled the location of most of the camps...Fresh water was probably one of the first essentials and it is often today a matter of superstitious conviction with the old settlers that 'wherever you find an Indian mound, there you'll find water -- if you look long enough.' Generally this connection holds, but not invariably, and this partly by reason of the geological changes which have taken place in the region since the shellmounds were begun." (1909:325).

We will not here summarize geographic or ethnographic information contained in the "Bayside Facilities Project Cultural Resources Study: Preliminary Report" (August, 1980). Indeed, the generalization by Nelson quoted above is introduced because an interesting correspondence has been found in this more intensive study of the exact

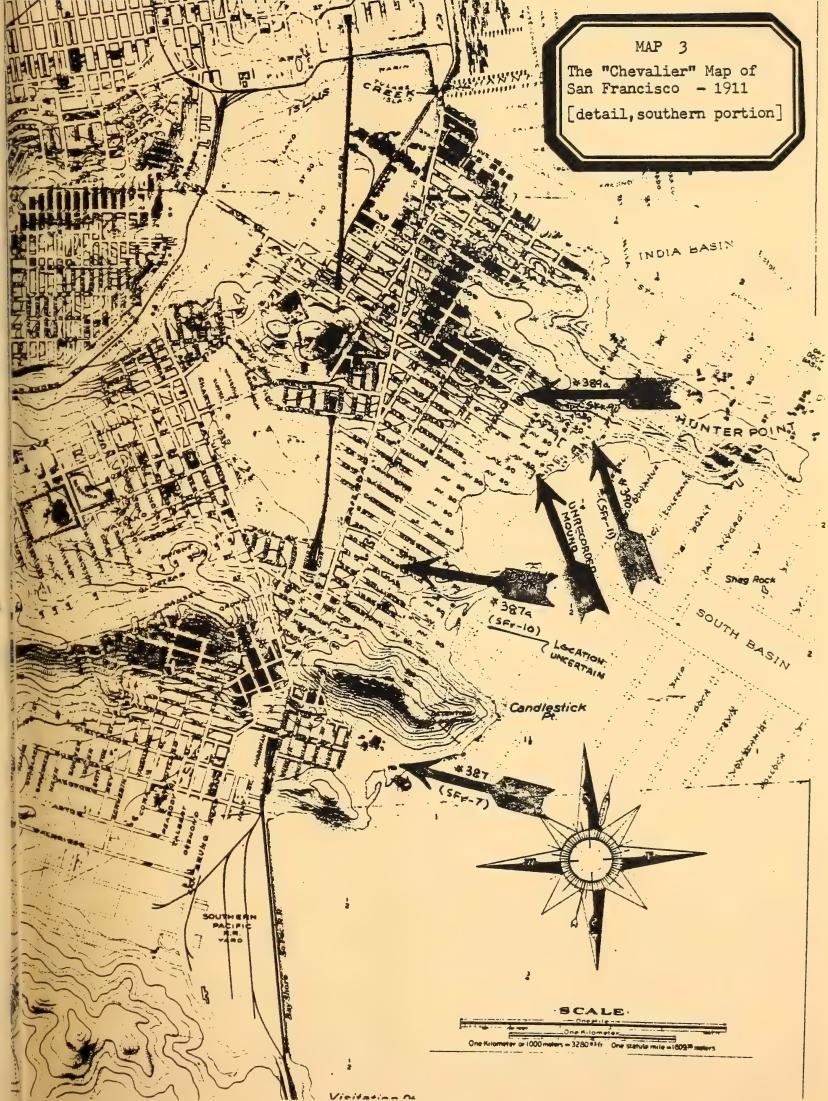
location of the Nelson sites relative to the selected Sunnydale-Yosemite alternative and the location of scattered historic structures of the 1850's and 1860's.

1852 U.S. Coast Survey Manuscript Map (Map 4)

This map is the earliest accurate and highly detailed topographic map of the Sunnydale-Yosemite facilities area. Striking features of the shoreline from the tip of Hunters Point (Pt. Avisadera on the map) to the end of the map at approximately the present county line, south of Candlestick Point, are the lagoons and marshes, in connection with the hills and obvious drainage patterns.

Relative to the quotation from Nelson above, the three houses in a row near the northern tip of Hunters Point (1) are in the proximity of Site #392-a on his 1909 map, and the houses and fenced field east of the large lagoon on the south shore of the point (2) are located on or next to Site #390. The sanded area between the southernmost 20-foot contour line of Candlestick Point and the lagoon to the south of it is the location of Site #387 (3). No one had built on or near this site in 1852, nor does the 1869 U.S.C.S. chart show a building or fenced land there. The same is the case with Site #387-a, which lies somewhere between Candlestick Point and the very large marshy indentation north of it; however, windmills can be seen in truck garden plots in this area in a photograph taken around 1908. On the north side of Hunters Point, a house and fenced plot (4) mark the site of the later Albion Brewery; no prehistoric site has been recorded in this location, but the very large spring on the site still produces commercial bottled water.

The Unrecorded Potential Prehistoric Mound Site extending to the intersection of Griffith and Shafter, on 2A-1, is the curious hump in the marsh, next to a lagoon, marked (5). "Curious" is said because the hachure marks delineating this hump were not a convention used in drawing this map. Only two other somewhat similar hachured humps have been found on the map. One is at


MAP 3
The "Chevalier" Map of San Francisco - 1911
[detail, southern portion]
INDIA BASIN
HUNTER POINT
#384
(SFr-9)
#386
(SFr-11)
UNRECORDED INDIAN MOUND
#387a
(SFr-10)
LOCATION UNCERTAIN
Shag Rock
SOUTH BASIN
Candlestick Pt.
#387
(SFr-7)
SOUTHERN PACIFIC R.R. YARD
SCALE
One Kilometer
One Kilometer or 1000 meters = 3280.83 ft
One statute mile = 1609.35 meters

Flow out

Flip out

the location of a definitively established site of the important Nelson #387 Mount (3). A second small hump shown in this manner is on the west side of the hill next to (5), on the shore of the marsh (6). This second potential site (6) is more than a block south of the 2A-1 alignment.

19th Century Changes in the Natural Site: Development in the "South Basin" area of the Sunnydale-Yosemite Project area, where the identified and suspected prehistoric sites noted above are located was slow. The 1869 U.S.C.S. map (Map 5) shows the same lagoons, marshes, and shoreline. Streets had not been laid down; buildings were few, and not of the type that had the sort extensive ground leveling and basements excavation work comparable to (for instance) the Yerba Buena Center area in 1869.

The 1911 Chevalier map still shows little general development in the area involving major cutting and filling. World War II resulted in vast expansion and filling of Hunters Point - but not far enough south to affect the relevant Sunnydale-Yosemite prehistoric site locations.

Post-World War II filling has changed the shoreline substantially. Buildings are located over parts of some sites - but the problem of archaeological impact relevant to the Sunnydale-Yosemite Project is primarily relevant to street lines and grade. Present street grade levels at places where the sewer excavations may impact these sites are higher than original grades, as the result of filling.

Impact on the mound sites from cutting must therefore be specific to each site, rather than the general pattern of development. Given the historic nature and grades of the sites, filling has most probably preserved significant portions of shellmounds. This would be true even where excavations have removed large portions of the mounds for commercial purposes.

THE IDENTIFIED PREHISTORIC SITES AND PREVIOUS IMPACT ON THEM

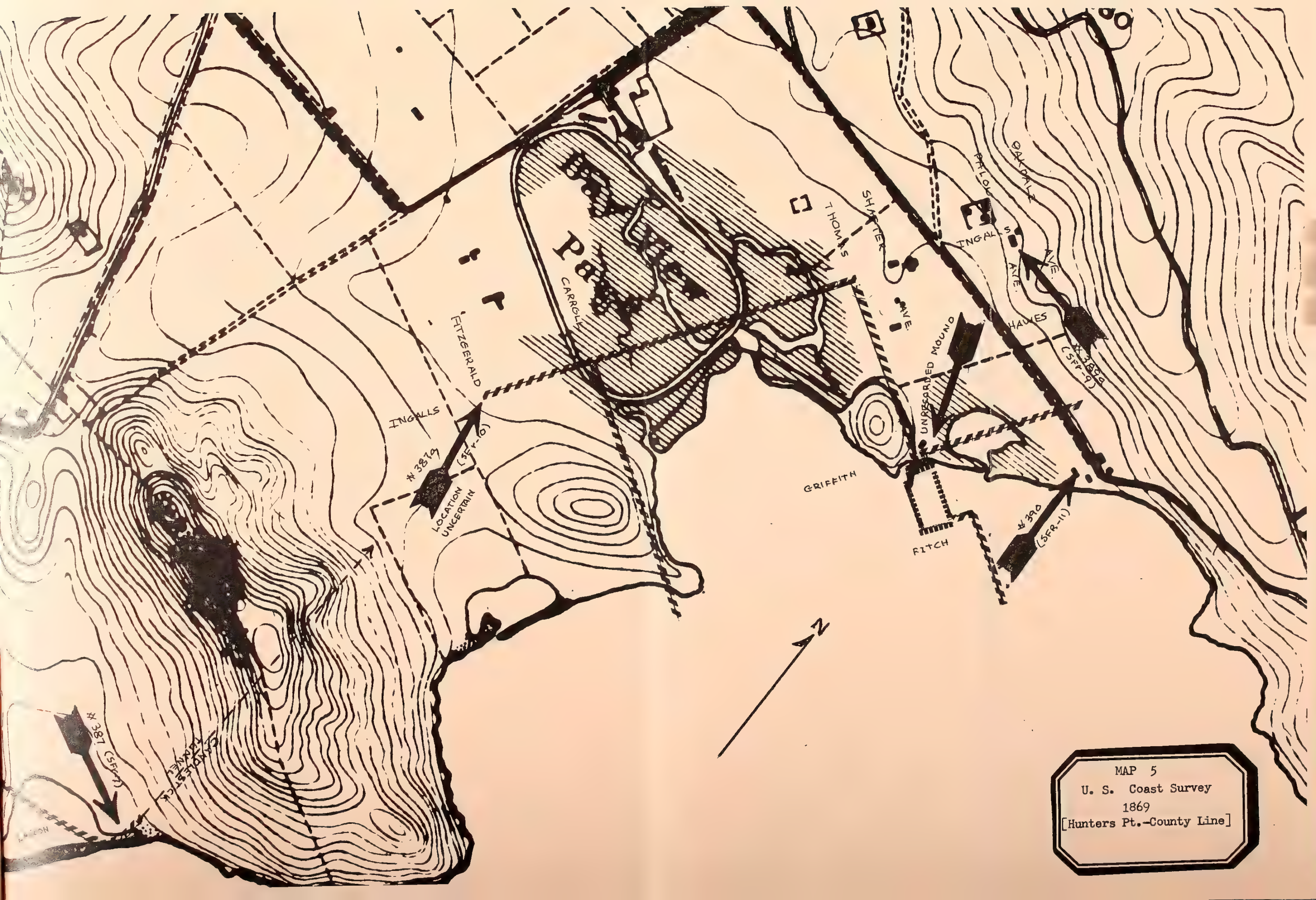
The description of the specific location of the sites that may be impacted by 2A-1, and the known or probable previous impact, will be discussed together. Much of the information as to specific site location is related to map information that shows or implies some previous impact.

Some notes from Nelson's 1909 publication on Bay Area shellmounds are appropriate, as they were drawn from observations upon which the mounds have been located. Nelson mound #387 was one of the sites that he not only worked on extensively, but seems to fit the general model of his overall description of the nature of these mounds.

"The size and form of the shell heaps, while often much altered by one cause or another, are still in most cases approximately determinable. For instance if a mound has been partly hauled away, abundance of material made economy unnecessary, and the thinner peripheral portion is usually left undisturbed. Actual dimensions vary greatly. Thus the basal diameters range from thirty to six hundred feet, and the height runs from a few inches up to nearly thirty feet."

"The typical shell heap of the San Francisco Bay region is oval or oblong in outline, with smooth slopes, steepest of course on the short transverse diameter; and the longer axis is generally parallel to the shore-line or stream to which the pile may be contiguous." (1909:325)

We call particular attention to the comment that portions of mounds previously "hauled away" are usually found undisturbed.



MAP 5
U. S. Coast Survey
1869
[Hunters Pt.-County Line]

This circumstance accords well with the logic of diminishing returns: the excavation for commercial use of this low-priced material would not warrant the cost of exploiting the outermost or perhaps bottom-most portions of the mounds. Further comments by Nelson are relevant to the sites that may be encountered by 2A-1:

"The state of preservation of the mounds, just touched upon, is a matter of some consequence. It so happens that the majority of the larger accumulations lie precisely in the places since found suitable for habitation by the modern invaders, and therefore have to give way to the requirements of civilization. Towns are growing up in the principal valleys favored by the shellmound peoples; and in the canyons, as well as on the plains, ranch houses often cluster about, and not infrequently occupy the summits of these ancient dwelling sites. The accumulated refuse [of the mounds] has also been found useful in many ways. For example, the composition will sometimes yield splendid crops of potatoes and other vegetables; and this fact, as it has become known, has generally led to reduction and cultivation of the mounds. In addition to this source of destruction, the material is removed to serve a variety of purposes, such as ballast for roads and sidewalks, as garden fertilizer, and even as chicken feed. It is said that the mound material, mixed with rock salt, produces tennis courts that for combined firmness and elasticity are unexcelled. The result is that while there is still ample opportunity for the investigator, not a single mound of any size is left in its absolutely pristine condition." (1909: 326-329)

The sites that are dealt with in this report, which may be encountered by 2A-1, certainly fall into the category of those that may have been exploited for cultivation and fertilizer. Truck gardening in and adjacent to the area dates back at least to the evidence of the 1857 U.S. Coast Survey Chart, which extends

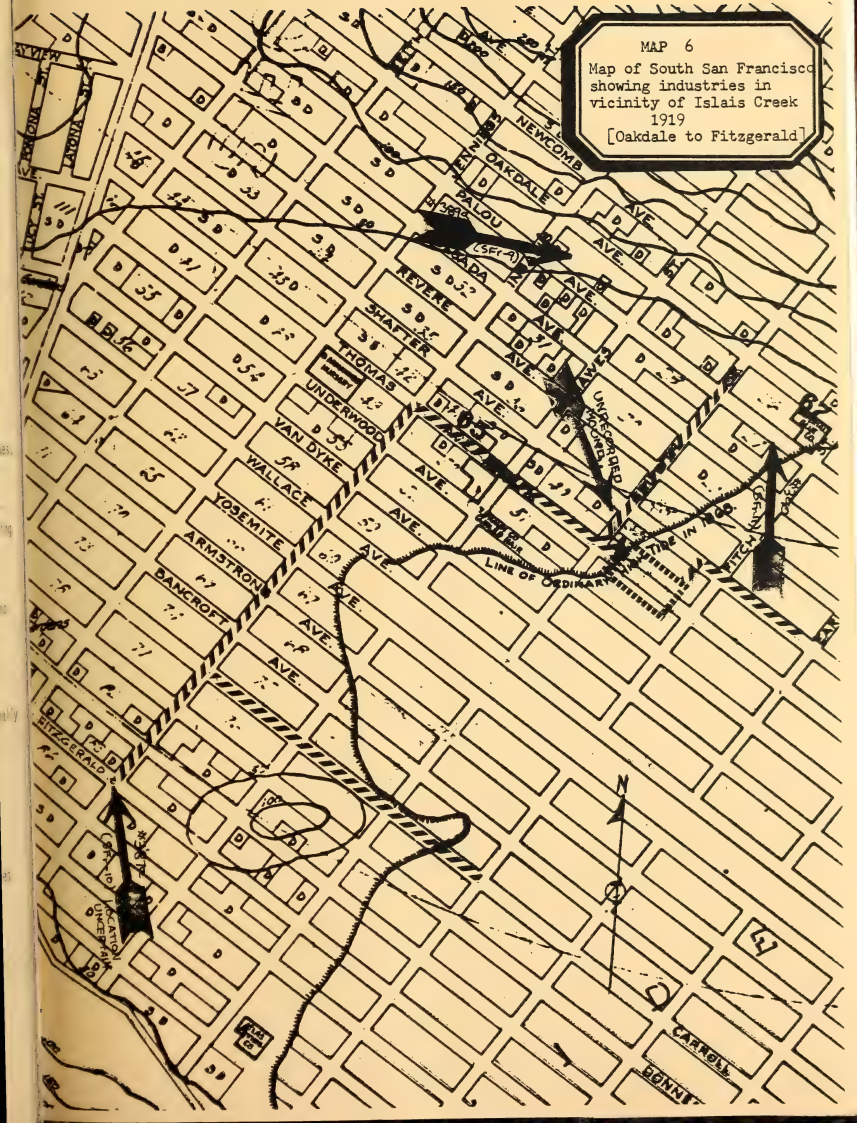
southward to Islais Creek, with clear indication of cultivated fields; and the 1919 map included in this report (Map 6) shows city blocks, and larger plots, on either side of Third Street in the vicinity of Fitzgerald Avenue, as "vegetable gardens."

At the same time, the comment that even in 1909 Nelson found no undisturbed mounds adds importance to 1980 remains of any useful extent. Furthermore, the methods used by Nelson and other archaeologists who dug the mounds early in the century left much to be desired,even by the standards of their time.

Nelson apparently did not screen deposits in his extensive digging in Site #387. It would appear that he was working through large quantities of earth at a pace approaching the more unfortunate situations that present day archaeologists find themselves in when they are only one step ahead of contractors committed to tight and inflexible schedules. The basic data, as well as techniques, were not then so well developed: for example, ash that today could be valuable for carbon dating was then a superfluous material.

A final quote from Nelson's 1909 report will assist in clarifying what these prehistoric remains that may be encountered by 2A-1 consist of - and why an early, phased program of field work, starting with borings, would be expected to distinguish a shellmound site from subsurface soils containing natural shell deposits.

"The San Francisco Bay shellheaps contain, besides molluscan remains, a large percentage of ashes and charcoal, together with varying quantities of broken rock and waterworn pebbles. Occasionally there seems also to have been added more or less of ordinary earth or dirt, until in some of the mounds - and usually those farthest from the shore - the shells become an almost negligible element. The presence of the pebbles in some of the deposits is difficult to explain, unless they were brought with the earth; and this seems not always to have been the case because the pebbles are often most abundant in the accumulations containing little


MAP 6
Map of South San Francisco showing industries in vicinity of Islais Creek
1919
[Oakdale to Fitzgerald]
NEWCOMB
OAKDALE
PALOU
REVERE
SHAFTER
THOMAS
UNDERWOOD
VAN DYKE
WALLACE
YOSEMITE
ARMSTRONG
BANCROFT
FITZGERALD
AVE.
UNDISCOVERED
LINE OF ORDINARY
CARROLL
BOUNT

MAP 6a
Map of South San Francisco showing industries in vicinity of Islais Creek
1919
[Candlestick-County line]

but shell and ashes. Furthermore, it is to be observed that some of the mounds containing the pebbles are situated on the marsh and in other places near which pebbles are not now to be obtained.

"The cracked and broken rocks, which were supposedly brought together chiefly for hearth and cooking stones, vary in kind locally, but foreign specimens are everywhere present and some of these must have been brought long distances." (1909:335)

Nelson Site #387 (SFr-7)

There are Nelson notes of an extensive controlled excavation of this site, dated 1910 (Lowie Museum). These notes include sketches and field notes of 23 prehistoric burials. The sketch map with Nelson's notes is not to scale, but was measured by him at 520 feet east-west; from the map we estimate the original north-south dimension at no less than 300 feet. The mound extended below (as well as above) the original ground surface. Field observations made today and present survey references show a general raising of grade in the mound areas except at its highest point. According to Nelson's measurements from high water datum, only about 2 feet out of a mound depth of 16½ feet had been removed by general grade changes. Excavation supervised by Nelson impacted only a relatively small cross section of the mound. Other excavation (for sale of shell for fertilizer or chicken feed grit) may have been more or less extensive - but can only be determined by archaeological field testing.

The 2A-1 route transects site 387 between the sewer control structure (CS) at the southern end of the Candlestick Tunnel and the shore of a former lagoon 250 feet to the southwest of the CS (see attached alternative 2A-1 map with the outline of lagoon from the 1919 Harbor Commission map, Map 6A.)

The planned sewer excavation depth (CB-15) includes the entire mound depth as established and projected by Nelson. Whatever the unknown degree of possible subsequent commercial excavation of the mound, probable sewer impact on extant remains of the site is very high. Potential National Register significance is very high (as is also true of the other sites described below).

The site plan and profile prepared by Nelson (Map 7), as compared to the full range of historical maps employed in the study, suggests that the northern perimeter of the shellmound extended to the northwest of the 2A-1 control structure at the southern end of the Candlestick Tunnel, and that the mound included the site at the control structure and the sewer alignment at

least 100-150 feet southward. It will be noted on the Nelson plan (Map 7) that the southern edge of the mound is a straight line - suggesting that the road grading, or some previous excavation of the mound for other reasons, had removed the above-grade portion. This observation, and the location of the road and houses on the Chevalier Map of 1911 (Map 3), leads to the supposition that a portion of the mound may lie beneath the surface for an additional distance to the south (50-100 feet?).

It will be noted that the Nelson cross section shows only the east-west profile. This profile shows subsurface portions of the mound extend eastward into the bay and westward beneath the sand. Unfortunately, Nelson failed to show the lagoon shore, which would give us a more exact fix between his map and the scaled maps of 1852 to 1919. By "exact" we mean measurements that would tell us within a range of 5-15 feet where test borings were located in relationship to the Nelson drawing. It may be that Sanborn Maps of the 1920's or 1930's that we have not yet consulted showed some of the "Old Bunk Houses" still surviving, together with some clear reference point (a property line or the wharf, for instance).

Sanborn Maps published near the time of Nelson's field work here did not include this remote section of San Francisco, and the possibility of locating specific spots within the actual mound would not have appeared possible to us until the logic of Nelson's cartography, combined with the very late discovery of photographs of his dig (Figures 1 and 2), threw additional geographical light on the subject even as this report was being completed. The shapes of the road and wharf and their exact locations are stylized; they are additions, from a very rough field sketch, to the more careful drawing seen on the cover of this report. That drawing, in turn, was more carefully redrawn, as seen in Map 7. The shape and position of the bunk houses and their relationship to the "Perimeter of the Shellmound" were changed between the original rough sketch and the later, more careful drawing and map. So while scale is absent, and

the position of the dairy buildings, hillside contours, and wharf are diagramatic, the bunk houses are almost certainly placed rather carefully relative to the perimeter of the mound and the line 50 feet within that perimeter. We also have the noted 60-foot distance from the beach at high water.

Description of the type of known impact on the mound and of the burials and artifacts Nelson discovered in this excavation will be found in the "Research Design" section of this report.

Recollections of Recent Indian Occupation at Nelson 387 (SFr-7)

Leo Barker, Archaeologist for the Interagency Archaeological Service of the Heritage Conservation and Recreation Service, recollects that as a small boy he accompanied his father John Barker to a housing project (demolished in the 1960's) directly overlooking the Nelson Site SFr-7 as part of the Y.M.C.A. Indian Guide Program. The program was developed by the San Francisco Y.M.C.A. as a Father-Son program devoted to the use of Indian folklore and customs as part of the small group activities. John Barker was head of the program in San Francisco and took his responsibilities for locating local Indian lore seriously. With his young son, Leo, he interviewed Chief Eagle Wing, who lived in the project housing. Chief Eagle Wing printed privately a book on the folklore of the Klamath Indians. (See figure 3). The Barker interviews were used in the local Native American Heritage celebrations in 1957 or '58.

Dr. Richard Koch and others were involved in interviewing the Indians who lived in the housing project. As Leo Barker recalls, some 23 years later, there were other Indians living in the two-story frame apartment houses. There are several researchers, in addition to Dr. Koch, who might add to the definition of shellmound remains, as well as any recollections as to whether the Indian residents were aware of their proximity to the burial ground excavated so hastily by Nels Nelson and seen in Figures 1 and 2.

For this reason we recommend that a modest oral history program be added to the research design.

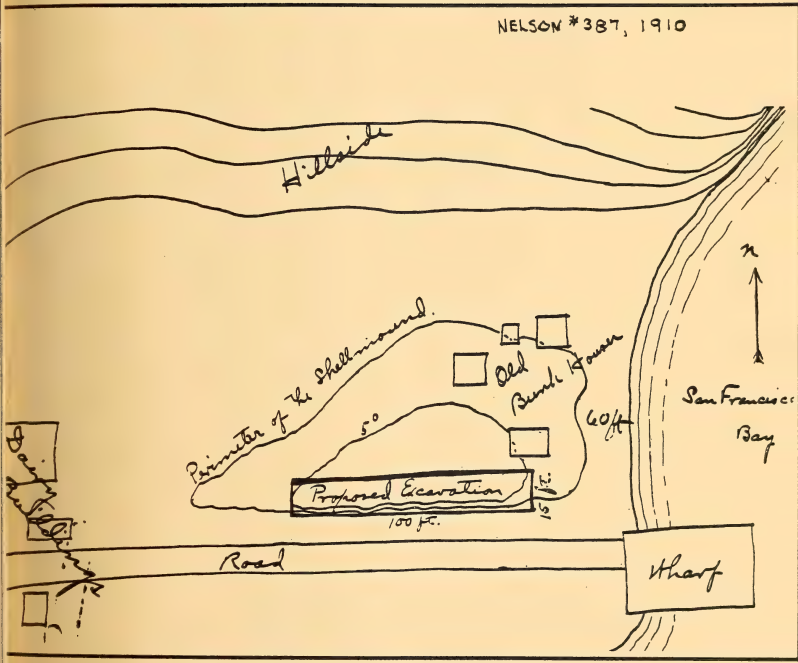


Fig. 3: Diagramatic Sketch by Nels C. Nelson of Site #387
The mound reached some 520 feet east-west by at least 75 feet north-south. The proposed excavation, dairy building and bunkhouses may be compared to this sketch from figures 1 and 2. [Lowie Museum]

Fig. 1: Nels C. Nelson's archaeological test at site #387, 1910. Known as the Crocker Mound and recorded as SFr-7, the 520-Foot long shellmound on the north shore of the lagoon at the county line near Candlestick Park, produced 23 Indian burials and many artifacts. [Lowie Museum]

ig. 2: Looking eastward from ite #387. The building at he left is the southernmost f the old bunkhouses shown n Nelson's site map (Fig. 3). his was the first of Nelson's our test trenches at site 387. [Lowie Museum]

Nelson Site #390 (SFr-11)

Only a single sheet of Nelson's notes on the shellmound he numbered 390 appears to have survived the loss of one or more of his notebooks. Fortunately, it is the rough sketch-map page. The information from the sketches on the two sides of the page established the site definitely as being on Palou Avenue, extending westward from the line of Fitch Street.

This area will not be impacted by excavation for 2A-1.

A second mound (or pair of mounds) are indicated on the sketch maps, west of the #390 site. At first, it appeared that this second site might extend to Griffith and Palou, which is on the line of 2A-1. However, careful reexamination of Nelson's sometimes almost indecipherable notation clearly shows that the second location is "Ca 3 blocks" (arrow) west of site #390. Again, the sketch of the new site on the reverse side leads with a note that appears to translate "I street btw 15-16 ave." I Street would be Ingalls; 15th and 16th were Oakdale and Palou avenues. The site lay adjacent to one spring and "500 ft +" from another "good spring."

The location of this second mound, not numbered on the notebook sheet, appears to correspond to Nelson #389-a, as seen on Map 2.

The area will not be impacted by excavation for 2A-1.

Nelson Site #387-a (SFr-10)

Nelson's notes on this site are lost. Topographic analysis of 1852, 1869, 1883, 1899, 1911, and 1919 contour maps of good to very high reliability fail to clarify very greatly the rather indefinite location on Nelson's small 1909 published map. Recent archaeological field experience has shown that an error of 600-1000 feet between the estimated and the actual locations on Nelson's map has happened in the case of sites like 387-a, where accurately identifiable adjacent locations are now absent.

We have interpreted Nelson's published map location of 387-a as in the vicinity of Ingalls and Hollister, about 450-500 feet south of the leg of 2A-1, ending at Ingalls and Fitzgerald. This is well within the margin of error experienced elsewhere (recent telephone conversation with Dr. David Fredrickson).

Topographic analysis is consistent with a possible location of 387 at or near Fitzgerald and Ingalls. Preconstruction testing appears highly advisable.

Unrecorded Potential Prehistoric Shellmound at Griffith and Shafter

The football-field sized hump found on the 1852 U.S.C.S. manuscript survey sheet can be seen clearly on Map 4 on the south side of the first lagoon south of Hunters Point (Pt. Avisadera), marked "U." Throughout this report we have used the convention of the streets (e.g., Griffith) running north-south, and the avenues (e.g., Shafter) running east-west. In reality, the grid is skewed almost 45 degrees. The 1852 mound feature runs approximately true north-south on its long axis. It measures ca. 300 feet by 110 feet. Its size and shape and orientation to the lagoon shoreline all conform to Nelson's generalizations (quoted earlier) about good-sized shellmound sites.

This mound (we cannot with certainty say "shellmound") runs from a point on the east side of Griffith, about 100 feet south of Shafter, diagonally across the street grid into the block bounded by Griffith, Shafter, Revere, and Hawes. The eastern edge of the mound passes through the southwestern portion of the intersection of Griffith and Shafter.

The 2A-1 alignment transects the mound, from the southern side of the intersection of Griffith and Shafter to a point about 100 feet southward on Griffith. If this is a shellmound, it no doubt extended further in all directions below the visible surface in 1852, and it would be prudent to add about 50 feet both northward and southward on Griffith to the probable impact area. The invert elevation of the planned sewer in this area is City Base -15, or about 10 feet below the probable marsh level in 1852. Present street grade at Thomas and Griffith is CB +3; at Shafter and Griffith it is +6.

Unlike the identified Nelson shellmound sites discussed earlier, potential impact in the case of this site includes an early American Period dwelling site. A box outline that appears too small to be a fenced area - but rather a house that the topographic engineer failed to black in - lies 80-90 feet south of the southern line of Shafter, extending into the eastern side of Griffith. The 1869 U.S.C.S. map shows the same rectangle as a house. A road is shown running roughly along the line of Thomas to a small wharf at approximately the edge of the projected pump station. Removal of part of the mound for commercial purposes may have removed all trace of this historic period occupation. But street grading alone would not have removed subsurface materials, unless the mound were higher than #387.

RESEARCH DESIGN

The following sections describe a research design for systematic archaeological procedures to locate and assess extant portions of the three recorded sites. Such research is generally conducted in a phased approach, with the first step being an archival and map search for information concerning the sites in question, and the general status of prehistoric studies in the region. This is followed by reconnaissance at the site, and testing--or if the circumstances warrant it -- of the conclusions reached on the basis of archival evidence and site reconnaissance.

General background data on SFr-7, SFr-10, and SFr-11, including site location, man-made and natural alterations of the shoreline since 1852, and considerations of some previous impacts on site locations, have been covered above. We turn now to a more detailed description of the sites, based on investigation of archaeological site reports, first hand observations from the early 1900's, and previous analyses of data from SFr-7.

Research aims for this Sunnydale-Yosemite archaeological program are developed within the context of regional prehistory and known site history, as detailed below. Research methods to be employed--appropriate to the present conditions and recorded history of filling and previous impacts at each site are then proposed.

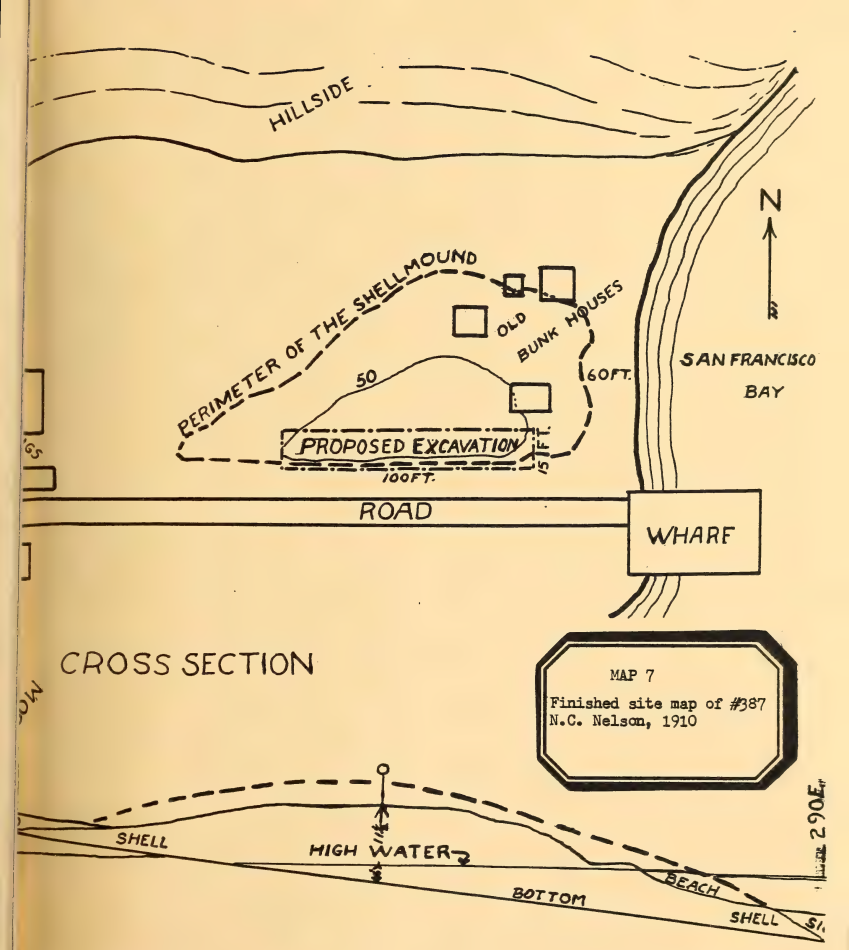
Research Aims

Generally speaking, data retrieved from any shellheap around San Francsico would contribute to the current knowledge of regional prehistory. Archaeological opinion is divided over the question of the sequence of cultural development in the Bay Area, with

alternative views offered by Gerow and Force (1968), who propose separate Bay and Delta traditions between 1500 and 1000 B.C., and Fredrickson (1973) who proposed an alternative system, lumping the Early and Middle Horizons of earlier schemes into an "Archaic Period," succeeded by a later "Emergent Period." Polly Bickel has suggested a focus on developing a sequence and transitions based on data from the Bay Area itself (1976:382). Elsasser, in the most recent survey of prehistoric sequences for California, retains use of the older terminology of Early, Middle, and Late Horizons (1978). To resolve these issues may require an eclectic approach to the use of models, as Bickel writes (1976:381-382), but more importantly will require fresh data. Hence the scientific value of the few remaining shell mound sites.

Much of the archaeological data upon which Elsasser and others have relied derives from excavations conducted in the early years of the 20th century (Uhle 1907, Nelson 1909, Loud 1914). The excavation technique, data recovery, and recording techniques used at the time were inadequate by today's standards (at SFr-7, as we shall see, no screening of excavated midden was conducted). Classification schemes and temporal sequences have been defined (e.g. Elsasser 1978), but those for the Bay region are based on frequently small amounts of data from only a few sites. Data from a modern excavation of a San Francisco Bay shell mound would strengthen the empirical base of what is as yet a far from clearly established prehistoric chronological sequence.

In terms of the San Francisco Clean Water Program and cultural resources management, the problems considered in this report are far more specific: to determine what remaining portions of shell mound sites SFr-7, SFr-10 and SFr-11 might be damaged by impact from the proposed construction of alternative Route 2A-1; to assess the current state of knowledge concerning the location and condition of the mounds, and to evaluate their potential archaeological significance; and finally - in the case that impact is probable - to design in-the-ground testing measures for determining the presence or absence of midden and assessing its integrity.


HILLSIDE
N
PERIMETER OF THE SHELLMOUND
OLD
BUNK HOUSES
60FT.
50
SAN FRANCISCO
BAY
PROPOSED EXCAVATION
15FT.
100FT.
ROAD
WHARF
CROSS SECTION
MAP 7
Finished site map of #387
N.C. Nelson, 1910
SHELL
HIGH WATER
BEACH
BOTTOM
SHELL

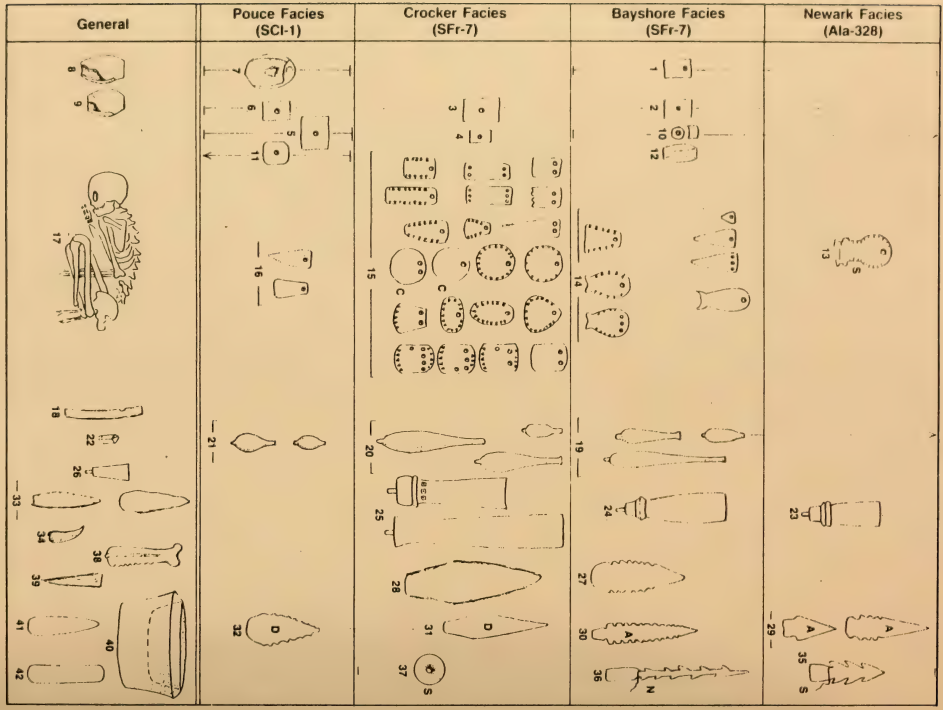


Fig. 4 Chart by J. A. Bennyhoff (1972) from Elsasser's Development of Regional Prehistoric Culture. Crocker Facies (SFr-7) and Bayshore Facies (SFr-7) indicate the type of artifacts found [illegible] of Candlestick Tunnel and Harney Way.

Acquiring Site Data

Several sorts of site-specific data were sought and consulted. A standard request was made to the Archaeological Clearing House for District IV, at Cabrillo College, Soquel, to obtain the official site records for SFr-7, -10, and -11. These site records showed that apart from their original recording by N.C. Nelson (1909), no subsequent data gathering has been conducted at the sites. The site report for SFr-7 contained only a verbatim repetition of information copied from Nelson's field notes by A.R. Pilling. SFr-11 is recorded as "lost," while no site record was available for SFr-10.

The next step was an examination of N.C. Nelson's original field notes and sketch maps - the basis for his Shellmounds of the San Francisco Bay Region (1909) - which are on file at the University of California, Berkeley. These notes comprise an accessible, but very frequently unconsulted, source of data on individual shellmound sites around the bay, since there are usually at least a page or two of comments, observations, and measurements for each of the mounds Nelson recorded. Unfortunately, as a note in Nelson's own hand explains - his notes for mounds around the south parts of the bay, including some San Francisco shell heaps, were lost. Apparently notes on Mound 387-A (SFr-10) were among these.

While only a hastily scrawled half sheet, covered front and back with notes and sketches, treated Mound No. 390, (SFr-11) some 30 pages of descriptions and comments were devoted to Mound No. 387, (SFr-7), imparting a solid basis for making some estimation of the location, condition, and potential significance of the latter site. The remarks which follow, concerning the two sites are based largely upon the data contained in Nelson's original notes.

SFr-7 (Nelson Mound #387)

Nelson's notes concerning the site place it on the north shore of the little cove notched in the south side of Candlestick

point. Nelson wrote in his notes that Mound 387 was "one of the longest in the vicinity of Hunter's Point." As established in a preceding section of this report, the placement of this large mound places it unmistakenably across the alignment of alternative sewer route 2.A.1.

Nelson's observations were made around 1910. At that time a road led to the small wharf apparently known as Johnson's Landing. Map 7, a reproduction of a site plan included among Nelson's notes, portrays the situation, with a dairy slightly to the west of the mound, and a cluster of old bunk houses atop it. The road leading to the small wharf is also visible on Chevalier's 1911 map of San Francisco (see Map 3).

Although Nelson's notes on the site are extremely cursory, they contain, for instance, no explanation of the "proposed excavation" so prominently displayed on his map, nor any account of the methods used when the excavations were actually carried out, it has been possible to piece together a reconstruction of much that went on at the site. From Nelson's map, together with his occasional observations, we may adduce a number of features salient to the site's potential significance and develop testing measures appropriate to the situation.

Mound Size & Effect of Previous Impacts (#387)

In Nelson's notes there is no attempt to estimate the total size of the mound, or an explicit description of what impacts it had suffered in the early 1900's. At the same time, his map, together with other facts contained in his notes, allow us to piece together a good deal of information on these points. According to the cross section shown on his site map, the mound reached some 520 feet east-west, by at least 75 feet north-south, (Map 7). The original subsurface width-possibly extant- may have approached 300 feet. Its maximum thickness was more than 16 feet, with some five feet of this lying below the high water line. This submerged portion, resulting from a subsidence of the land with respect to the bay over the past millenia, is a phenomenon of other bay shell mounds as well (Nelson 1909; Bickel 1978).

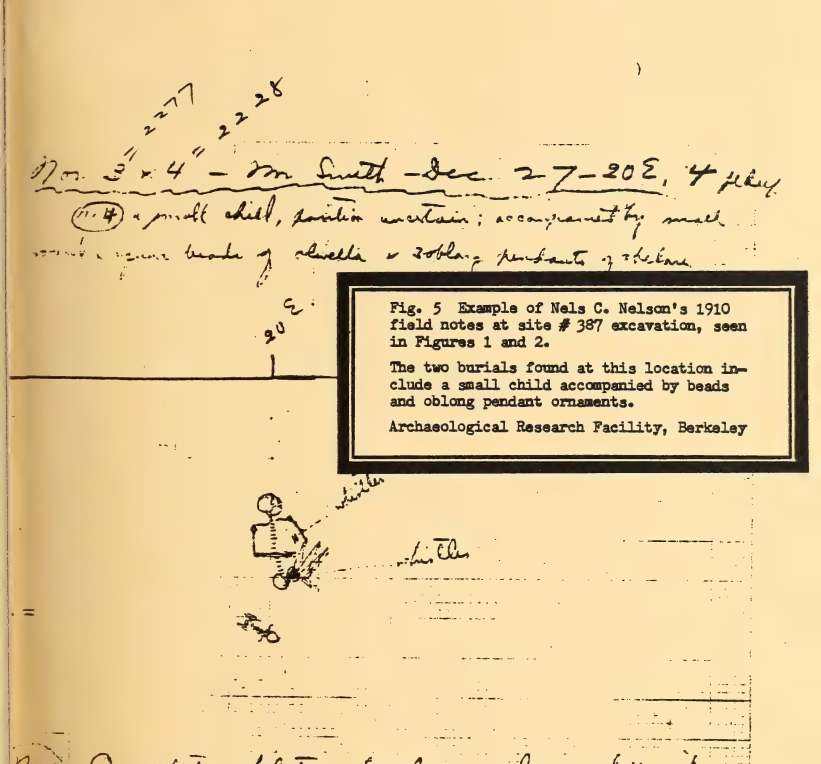


Fig. 5 Example of Nels C. Nelson's 1910 field notes at site # 387 excavation, seen in Figures 1 and 2.

The two burials found at this location include a small child accompanied by beads and oblong pendant ornaments.

Archaeological Research Facility, Berkeley

Fig. 6 Another example of Nels C. Nelson's field notes, in this case drawn by Mr. Waddell on December 28, 1910.

As the notes reveal there were pieces of charred wood, tin can, and a bottle—perhaps from an old cellar nearby.

Archaeological Research Facility, Berkeley

No 6 — Incomplete skeleton of small individual, middle age. The Ornaments about head consist of abalone disks, olivella beads, square + whole; 1 [illegible] shell; 1 abalone fish point. — 16440-80

No 7. Incomplete skeleton

Note — In close proximity were pieces of wood, some charred, tin can, bottle etc. Probably an old cellar.

Note: — 6 & 7 are both marked 1/1

Nelson notes that two burials recovered 70 and 75 feet east of his datum point were two feet below the surface, but six feet below the original surface, indicating that four feet of the upper mound had already been scraped away. The reason for this "scalping" of the mound is unknown, but quite possibly resulted from the need to clear a level space under and around the "old bunk houses" shown on the Nelson sketch map.

Nelson's recording of the high water line furnishes a datum for placing the mound with respect to present grades. The height shown at the central part of the midden is 11½ feet above high water. Assuming that Nelson located his "high water" line from visual inspection of the adjacent beach, we may compute that 11½ feet represents an elevation of about five feet above City Base. Since the current street grades along Harney Way are about C.B. +3, it would appear that at least another two feet of the mound were removed to lower it to street grade. If mound material were not removed for other reasons, as discussed below, and if the mound were simply leveled to approximately street grade at the time landfilling took place, then midden deposits should lie only a slight distance below the present ground surface along and to the north side of Harney Way.

In 1910 the mound was excavated by University of California students under Nelson's direction, presumably in the area marked "Proposed Excavation" on his map. The notes record that four trenches were excavated, ranging from 100 to 150 feet in length, 3 to 5 feet in width, and 4 to 9 feet in depth. Figures 1 and 2, obtained from the Lowie Museum of Anthropology at the University of California, show the excavation in progress.

This excavation produced some 23 human burials (Figures 5 & 6) and some sixty artifacts, many associated with the burials. On the basis of the artifact data recovered, Elsasser has used SFr-7 as a type site for identifying two distinct facies--the Crocker, and the Bayshore -- which he attributes to Phase 1 of the Late Horizon (1978:42-43).

Artifact #60 on Nelson's field catalog of artifacts recovered lists a "small crucifix." The depth at which it was discovered is listed as "[circa] ½ [foot]," suggesting that this artifact may date from post-aboriginal activity at the site. On the other hand, if the artifact does signify evidence of Mission Period contact during the active Indian use of the mound, then its importance would be further enhanced. The late date suggested by such contact is not necessarily inconsistent with the Late Phase I dating assigned by Elsasser, since the stratigraphy of the mound is so poorly understood, and the existence of multiple components is possible.

To what extent the mound may have suffered impacts subsequent to Nelson's large scale excavations is unknown. Parts of it may have been sold as topsoil, a practice documented by Nelson for the Ellis Landing site across the bay at Richmond (1910:359), although there is no evidence to suggest this.

Although the techniques of Nelson's excavation were rudimentary by today's standards, the data from SFr-7 included a wide range of artifact types, as well as charcoal and ash, which today could be used as samples for radio carborn dating. It is clear that the mound, like the Ellis Landing site across the bay at Richmond (Nelson 1910), constitutes an archaeological resource of demonstrated value, which with the application of modern scientific techniques could yield vital new information concerning Bay Area prehistory.

A walkover inspection of the site in early November, 1980, failed to disclose any exposed midden. The roadbed of Harney Way, exposed in about a nine foot face where it drops to the Bay waters, consisted of introduced fill bearing numerous bits of brick and glass. On the north side of the road is a drainage ditch some four feet deep, but its sides are paved with asphalt, preventing the exposure of a soil profile which might otherwise reveal midden.

Site SFr-11 (Nelson Shellmound #390)

A page of Nelson's field notes concerning this site survived the loss of his notebooks covering the shellmounds in the Hunter's Point area. The single sheet of notepaper treating the site consisted of a rough sketch map, enhanced with scribbled remarks and estimated dimensions. It establishes clearly, however, that the site Nelson designated as Mount #390 was situated on Palou Avenue near the shoreline, at what would today be immediately west of the intersection with Fitch Street. The complications and possibilities introduced by a second mound (or pair of mounds) to the west of Site #390 that form an addendum to Nelson's notebook sketch have been discussed earlier, with the conclusion that the additional site is around Ingalls Street, between Oakdale and Palou, about 1,000 feet from 2A-1. Whatever may remain from SFr-11 will suffer no impact from alternative route 2A-1, which is one block west of Fitch (see Map 1). For this reason no archaeological testing or assessment of SFr-11 are called for.

Site SFr-10 (Nelson Shellmound #387A)

Location of the site is limited to its notation on the map of Bay Area shellmounds that appeared in Nelson's survey report of 1909. As the archival analysis shows, the site is probably, but not at all certainly, south of the southern end of the leg of 2A-1 which meets the existing Candlestick Tunnel at Fitzgerald and Ingalls. The intersection of Fitzgerald and Ingalls is both within the zone of ecological probability for the actual site, and the margin of error likely to be encountered in trying to locate accurately this particular site (with no nearby identifiable reference points) on the Nelson map.

Were a large area from the vicinity of Fitzgerald and Ingalls southward to be excavated for the planned sewer construction, it would be deemed impractical to test randomly for this site along thousands of feet of streets. However, the actual case

is that only the southernmost end of the Ingalls Street alignment would appear possibly to transect this site. Hence, archaeological exploratory borings are recommended, comparable to the program recommended for the potential unrecorded shellmound at Griffith and Shafter outlined below and described in the detailed field work program concluding this report.

Potential Unrecorded Shellmound at Griffith and Shafter

The survey of historical maps was carried out before Nelson's notes on the shell heaps had been consulted. The 1852 Coast Survey chart (Map 4), had revealed a long, oval shaped feature on the marshy west shore of the small cove just south of Hunters Point. Today, this location lies under the block, having as its southeast corner the intersection of Griffith and Shafter Avenues. A careful superposing of present day and historical maps shows that the southeast tip of this feature projected into the line of today's Griffith Avenue, at its intersection with Shafter.

Hachure marks along the periphery of this topographical feature presumably indicated the steep slopes of a mound or hummock. Given the small scale of Nelson's map showing placement of the Bay shellmounds (Map 2), this feature was taken to represent Mound #390. When Nelson's notes on #390 were inspected, however, they indicated unmistakably that the site was located along Palou Avenue, near its termination at the 1909 shoreline, or approximately at its present day intersection with Fitch Street. This spot is some 1000 feet northeast of the hummock located on the 1852 map. The question then arose: what was represented by the oblong shaped mound which had sat near the present day intersection of Griffith and Shafter?

The southeastern end of the mound lies in the line of Griffith and would probably be impacted by construction of Alternative Route 2A-1. It should be borne in mind, moreover, that large shellmounds in marsh locations frequently possessed a submerged portion extending well beyond the visible contours of the site (Nelson 1910: Bickel 1978; see also Map 7 of SFr-7, above).

In light of the possibility of construction impact on a previously unrecorded shellmound, archaeological testing is warranted, to determine the presence or absence of midden in the line of Griffith Avenue, in and near its intersection with Shafter Avenue. Specific testing proposals are spelled out below.

RECOMMENDATIONS

Of the hundreds of prehistoric shellmounds which once dotted the shores of the San Francisco Bay, no more than a handful have survived the process of rapid urbanization to become the objects of modern, systematic archaeological inquiry. As a result, archaeologists interested in local prehistory are interested in identifying remnant portions of the once abundant shellmounds, and consider such a find to be of considerable significance. Any such site which could be shown to be reasonably intact would almost certainly be deemed eligible for inclusion within the National Register of Historic Places.

Based upon a careful review of available archival documentation as well as the impressions of a first-hand field reconnaissance, the authors have concluded that there is a reasonable possibility of encountering portions of one or both of N.C. Nelson's shellmounds #387 and #387-a, as well as an unrecorded site, within the impact zone of impending sewer construction. Therefore, it is recommended that a program of subsurface archaeological investigation be implemented in an attempt to locate and identify these sites. The recommended archaeological field work is envisiaged as a phased approach: Phase I would consist of the placement of a series of mechanical auger probes from a truck mounted drill rig. The purpose of this phase of the work is to determine the presence or absence of subsurface portions of the target shellmounds. It is recommended that up to five mechanical borings be authorized to detect the possible presence of shellmound #387-a and the Griffith and Shafter location, and up to ten for shellmound #387.

The specific locations of these probes shall be selected by the Principal Archaeological Investigator based upon his evaluation of the archival sources and the actual field conditions.

The second phase of the recommended research program shall only be undertaken if archaeological midden is detected in the target localities. The purpose of the second phase of the work is to identify the vertical and horizontal extent of the archaeological deposits, evaluate the contents of the midden, assess the degree of intactness and contextual integrity of the site(s), and provide a series of recommendations for the mitigation of adverse impacts to archaeological resources of demonstrated significance.

The second phase of the research shall consist of the placement of a series of hand dug auger probes as well as a number of hand excavated 1x1 meter square test units. It is estimated that up to ten such auger probes and two test units shall be placed in the vicinity of site #387-a and the Griffith and Shafter site; a maximum of twenty auger probes and four hand excavated test units may be necessary to properly identify the remains of Shellmound #387.

All of the archaeological research shall be directed by a competent professional archaeologist with expertise in the prehistory of the San Francisco Bay area, and conducted in accordance with the highest professional standards. All of the cultural material recovered in the field shall be the subject of appropriate laboratory analysis and concomitant archival research so that the chronological, functional and contextual affiliations of the site(s) under investigation can be ascertained to the greatest degree possible. Based upon the field research and subsequent analytical procedures, the Principal Archaeological Investigator, working with the principal historical investigator, shall submit a written report to the project sponsor which describes, analyzes and interprets the findings which have been made and which offers recommendations for any further archaeological procedures which

may be necessary for the adequate mitigation of adverse impact to cultural resources eligible for nomination for inclusion in the National Register of Historic Places.

Summary of Subsurface Archaeological Testing Program on Sunnydale/ Yosemite 2A-1 Alignment by California Archaeological Consultants.

In January, 1981 California Archaeological Consultants, under the direction of Peter Banks conducted subsurface archaeological borings near the intersection of Harney and Alana Ways. Augering demonstrated that intact prehistoric cultural deposits, presumably those of Nels C. Nelson's CA-SFR-7 were encountered beneath 14 feet of fill. The investigation revealed that the shellmound might extend into the areas of the Sunnydale/Yosemite 2A-1 alignment between the south portal of the Candlestick Tunnel and Harney Way and along Harney Way. This first investigation was in connection with construction by the Campeau Corporation

A second investigation authorized by the San Francisco Clean Water Management Program was carried out on three potential prehistoric sites with the following results:

(1) CA-SFR-7: a section measuring 330 feet contained 5-8 feet of apparently intact prehistoric cultural deposits at an average depth of 25 to 33 feet below surface, or from -5 to -13 city base. Auger units were placed at 40 to 50 foot intervals along Harney and Alana ways to define the southeastern and southwestern boundaries of CA-SFR-7. Apparently intact prehistoric cultural deposits were found within a 400 foot section in this area, averaging four feet in thickness.

(2) Archival research suggested that an unrecorded potential prehistoric shellmound might be located in the vicinity of Griffith Street and Shafter Avenue intersection. Borings indicated that apparently intact midden cultural deposits extended along Griffith Street from Revere to Thomas Avenues, for a distance of 500 feet. The prehistoric cultural deposits were as thick as seven feet at Auger Unit 4 and decreased from this central point in both directions.

(3) Archival research suggested that another smaller potential site existed near the intersection of Thomas Avenue and Hawes Street. The results of this investigation were less clear. Oral history (Ernest Braum, June 1981) supported by photographs, indicated that a portion of the street had been diked in 1915 which might well account for the appearance of some midden but in disturbed soil.

"There is no question that both CA-SFR-7 and the Griffith-Shafter Shellmound fully meet the National Register of Historic Places criteria for evaluation as significant cultural resources. The augering program indicated that the cultural deposits at both sites remained intact. Nelson's 1910 excavations at CA-SFR-7 have yielded information important to prehistory in that CA-SFR-7 is a type site for Late Horizon Times in the San Francisco Bay region...Additionally the twenty-four human burials that were recovered during the 1910 excavations demonstrate the religious significance that CA-SFR-7 had to is prehistoric inhabitants...Both CA-SFR-7 and the Griffith-Shafter Shellmound are significant in that they contain extensive, intact cultural deposits in a region where the processes of urbanization have destroyed the majority of other prehistoric cultural resources. (Banks, 1981)."

Fig. 7: Harney Way near Nelson site #387, November, 1980. Harney Way, in the foreground, follows very closely the line of the shore in Nelson's time (1910). The truck in the center foreground is parked atop a location believed to be at about the southeastern edge of the shellmound, where the original mound lay mostly below the beach. [Jack Prichett, 1980]

CITY AND COUNTY OF SAN FRANCISCO.

COMPILED FROM OFFICIAL SURVEYS, AND SECTIONIZED IN ACCORDANCE WITH U. S. SURVEYS.

DRAWN BY V. WACKENREUDER, C.E
1861.

PUBLISHED BY HENRY G. LANGLEY
For the San Francisco Directory.

MAP 3
SAN FRANCISCO IN 1861
C. E. VON WACKENREUDER

Scale of Statute Miles

½ ½ 1 2 Miles

SPANISH-MEXICAN & EARLY AMERICAN HISTORY TO 1866

Mission and Rancho Era

At the peak of its prosperity, around 1813, the Mission San Francisco de Asis (Mission Dolores) numbered some 1,200 native Indian converts who managed herds of more than 9,000 cattle and 10,000 sheep and produced some 6,000 bushels of grain (Hittell 1878: 67). An operation of this magnitude was scarcely supported by the fields and grazing lands in the vicinity of the Mission Dolores, but rather appears to have depended greatly on the more fertile valleys and grazing lands to the south.

In 1797, when the governor reestablished a royal rancho to supply meat for the soldiers of the San Francisco Presidio, he settled on the Rancho Buri Buri, south of San Bruno. The use of this location prompted protest, presumably stemming from the Mission fathers, that the Buri Buri pasturage was needed by the Mission and that the royal ranch would force Mission operations to move even farther south on the peninsula (Bancroft 1898: v. I, 707). The protest in itself demonstrates that not only the lands around the Mission Dolores itself, but also the lands of the Islais Creek Basin and Visitacion Valley, were being fully utilized. However, there is no indication from early maps (through 1852), including the diseños delineating the private ranchero grants, that any structures suggesting possible intensive use and consequent deposition of cultural materials were located anywhere near the proposed Sunnydale/Yosemite and Hunters Point facilities.

The land south of Islais Creek continued to be used as grazing lands for cattle belonging to the Rancho Rincon de las Salinas y Potrero Viejo, granted to Jose Cornelio Bernal on October 10, 1839, by Governor Figueroa. As Hittell

points out, the private land titles of the San Francisco peninsula date from 1835, when the Spanish-Americans—**gente de razon** or people of reason — were allowed to apply for grants of land that had previously belonged to the Missions. Like many of the grantees, Jose Bernal was a soldier at the Presidio. His father before him was a soldier who had arrived with the Anza expedition in Monterey in March 1776 (Hittell 1878: 72-75).

The preliminary survey of the larger Bayside Facilities cultural resources identified and located the Jose C. Bernal adobe dwelling site in Duncan Street, between San Jose and Valencia—considerably to the west of proposed construction. Further research located the site of the potential remains of the early Spanish wall described in the legal cases of the 1850's and in the work of Bowman-Hendry (ms. on file in Bancroft Library) as starting on Utah Street, north of Army, and extending northward past 23rd and York. The historic site of the De Haro Palizada at the intersection of San Bruno and 25th Street also lies far to the west of the proposed construction of the sewer.

At its northern boundary, the Bernal grant ended roughly along the line of Precita Creek (now Army Street), which emptied into the north side of Islais Creek. The southern border of the Bernal holdings met the northern edge of Jacob Leese's ranch, Cañada de Guadalupe Visitacion y Rodeo Viejo. The boundaries of the two ranches met at Candlestick Point in what is called "The Black Hills" on various old maps. Leese is remarkable in that he was the only Yankee to be granted a rancho on the peninsula. His Visitacion Rancho was granted in 1841 and extended over 8,880 acres southward.

The Wackenreuder Map published in 1861 (Map 3) is useful in showing the relationship of these ranchos. In addition it identifies specific structures that correspond to the Coast Survey maps of the period. Map 3 shows the Buri Buri Rancho (referred to earlier) farthest to the south, beyond the San Bruno Mountains. The small ranchhouse in Guadalupe Valley was probably the structure Leese was said to have erected for his **mayordomo** in Visitacion Valley "where he and his family also lived for a short time" (Hendry and Bowman 1940: 999).

Early American Development

Next to the county line on Map 3 is the Six Mile House on the old San Bruno Road, bearing the proprietor's name, "Cunningham." In 1858, the San Bruno Toll Road linked San Francisco with San Bruno. "The dairymen, ranchers, and others

Plate 4: Adobe Spanish-Mexican home in the Potrero, in about 1850...By the date of this view, a family of seven Anglos had occupied the bleak Potrero hillside and added a picket fence and wooden sheds on the right and left of the original early adobe structure. [California Historical Soc.]

along the route purchased ten dollar shares in the corporation that operated the toll road" (Wirth 1979: 103). Danforth writes "that the road was so narrow that a driver had to pull his wagon into the deep grass to let another wagon pass. . . . The main traffic consisted of milkers who worked on dairy farms in Brisbane and South San Franicisco" (Danforth 1967: 4). The name "Black Hills" marks the knobby crest of Candlestick Point. The small lagoon at the present day site of Harney Way can be located almost at the point the county line touches the Bay. The road from the Black Hills that appears on Map 3 as a straight line running north to the bay roughly corresponds to Third Street.

Hunter's house, as shown in the Wackenreuder Map, would be on the south side of modern Oakdale Avenue, west of Fitch, about 700 feet east of the sewer alignment. Hunters Point on Map 3 was also sometimes called "Hunter's Folly"--with good reason, as described in one of the earliest accounts of Yankee hopes for land development and settlement in the area.

A Frenchman who was traveling from San Jose to San Francisco in the 1850's described John Hunter's plans to establish a new city on land called South San Francisco:

> Hunter is a pleasant, courteous, well-mannered man who studied for a time in France at one of the polytechnic schools; graduating from there in 1834, he went into the Navy. From this he was given his discharge to return home to his family in America. As he was leaving France with some valuable merchandise, his ship was wrecked. He has already been ruined and re-established three times. No obstacles are too great for an American! His last calamity was a life-sized affair; he attempted nothing less than to establish a new city on a well-selected site on the bay. This was named South San Francisco, since it adjoined the main city. Taking on option on the land, he had plans made, lots mapped out, and an advertising campaign put on. His announcements and advertisements appeared in all the local papers. In the end nothing remained of this fine project but some uninhabited shacks and fifteen thousand dollars in unpaid bills.
>
> The speculation Hunter is engaged in now is equally hazardous but it has a chance for even greater profits. Three friends are in with him and each one has taken up a claim of sixty-four hectares on two ranches whose owners are about to abandon them. By selling this land to one another, ownership is established and, if there are no prior claims on it, the title will then be valid. However, they may have to go through the courts—a matter of years—in the meanwhile these squatters will probably compromise, or abandon half or three-quarters of the land they have usurped.

> Before dinner our host regaled us with a detailed account of the affair, which he described with a cold-bloodedness and aplomb that denote a complete absence of the moral sense and absolute ignorance of ideals and standards set by civilized citizens for mutual protection. . .(C.H.S. Quarterly: V, 376-77).

The Frenchman's dismay at Hunter's "cold-bloodedness and aplomb" was perhaps based on his lack of experience with early San Francisco speculators in land. From the Gold Rush of 1849 on, it was a recognized fact that California real estate was bound to be a very profitable investment. The atmosphere of feverish speculation in the profits to be made on San Francisco real estate was remarked upon by almost every observer of the times. That Hunters Point was a location whose time had not yet come is obvious from an early woodcut that appeared in the **Sacramento Union** in 1854, with the caption, "This locality is about five miles south of San Francisco, on the Bay. A speculative effort was made in the fall of 1850, to bring it into notice, and a few buildings were erected on the ground. Little has been done since" (Plate 5). Although the woodcut is a crude engraving, there is no doubt of its accuracy. A sign is posted with the name "Hunter" to the left of the American flag. The houses are in approximately the same configuration as the Coast Survey Map of 1852 shows them to be. (Map 1c). The woodcut engraving locates Hunter's development property at the easternmost tip of Hunters Point—a proper place for outdoor advertising.

We are less sure of the precise location of the painting entitled "Hunters Point," by F. Butman, dated 1859, in the archives of the California Historical Society. The painting, shown in Plate 6, shows the ruins of what may have been a fairly pretentious structure for the area. The houses at the farther point are part of a Chinese settlement, with some of the typical houses built on stilts, above the mudflats, where Chinese are fishing. Several Chinese are seated by a large basket, perhaps waiting for the arrival of the flat-bottomed boat. This may be the earliest historic view of a Chinese fishing village at Hunters Point. Chinese shrimp fishermen are found at Hunters Point from the 1860's through 1930. However, the land configuration and the houses bear little resemblance to the woodcut of only a few years earlier date. It may be that this is Hunter's other property as shown on the Wackenreuder Map of 1861, but again the land configuration suggests we are looking at a point of land.

By 1861, the date of Wackenreuder's survey, the Bernal Rancho lands east of San Bruno Avenue had been greatly subdivided. While this map does not

Plate 5: "Hunter's Folly" in 1850 from a woodcut in the Sacramento Union..."This locality is about five miles south of San Francisco on the Bay. A speculative effort was made in the fall of 1850, to bring it into notice, and a few buildings were erected on the ground. Little has been done since." [California Hist. Society]

Plate 6: Fredrick Butman's painting of Hunters Point in 1859...It is the researcher's opinion that this painting is of Hunter's property as shown on the Wackenreuder map of 1861, as it bears little resemblance to the accurate woodcut of some eight years earlier. [California Historical Society]

pretend to show all structures, in such outlying districts as the Sunnydale/Yosemite and Hunters Point areas houses are shown, usually with the owners' names attached. The three houses with the name "Hunter" appear on the Oakdale Avenue location. Names associated with later intensive subdivisions of the Homestead Associations of the late 1860's appear, such as Haley and Case.

The northern portion of the Sunnydale/Yosemite proposed sewer route is shown in the waters of San Francisco Bay just south of Du Vree's Creek (Islais Creek) on the Coast Survey Map of 1852. Newhall Street in 1852 was located in the salt marsh, as was the eastern portion of Fairfax Avenue. On the Wackenreuder 1861 map, only one house is seen west of the line of Third Street in the vicinity of the proposed facilities. This appears to be the same house shown on the 1869 U.S. Coast Survey Map on the Hunters Point Road approximately 125 feet south of the line of Fairfax Avenue between Mendell and Lane streets.

Hunters Point Transport Area

The Hunters Point Transport passes directly through the fenced yard of the only farmhouse on the 1852 Coast Survey Map (Map Ic). The presence of this isolated dwelling on the coast would suggest the likelihood of fresh water. The small farm would lie in the block bounded by Hawes, Griffith, Hudson and Innes. The farmhouse itself faced the line of Hudson Street with a fenced yard set at an angle across the block.

This same area is shown in 1900 on a Sanborn Map as containing a two-story dwelling with a stable, a well with a windmill, and a platform with various small one-story structures nearby. By 1900 the property lines had been adjusted to the usual rectangular grid pattern, and it is not possible to ascertain if the 1900 house is the same structure as shown in 1852. It would appear that we are looking at a newer and larger farmhouse in 1900. The whole area abounded in wells—as many as eight wells with windmills were on the block by 1900, when the eastern portion was occupied by Fred Seimer's Shipyard and H. Anderson's Shipways.

If remains of the 1852 farmyard structures were encountered in the course of construction, they would prove potentially very significant, as so little is known about the inhabitants of this area at that early time.

The Albion Brewery

The abundance of fresh-water springs accounts for the presence of the Albion Brewery at 881 Innes Street. Built in 1870, by Dr. John Burnell, on the site of the largest fresh-water spring located in the area, it functioned for many years as a brewery. The handsome three-story masonry tower attracted the attention of a sculptor, Adrien Voisen, who purchased the building in the 1930's for a studio. The Albion Brewery is on the National Register of Historic Places and the adjacent spring is still used today to bottle "Mountain Springs Mineral Water." The structure lies within 200 feet of the proposed sewer project on the northwestern corner of Innes and Griffith streets, as can be seen in Plate 7.

Plate 7: Masonry Tower of the Albion Brewery...A National Register Landmark at 881 Innes Street, built in 1870,by Dr. John Burnell who recognized that the natural mineral spring water had commercial possibilities. It has progressively been used as a mineral-water bottling plant, a brewery, a sculptor's studio, and is now the home of Mountain Springs Mineral Water. [Jack Prichett, 1980]

OPENING UP "SOUTH SAN FRANCISCO"—1864 to 1900

The first notable improvement in the Sunnydale/Yosemite-Hunters Point area was the construction of Bay View Park in 1863. Portions of the Sunnydale/Yosemite alignment on Carroll Avenue and Ingalls Street transect the eastern part of this racetrack. In the words of the city directory chronologist, "The ground is reclaimed and protected from the tide by a breakwater or bulkhead. A large and spacious hotel, with stables and outhouses attached, has been added, including the judge's stand and all modern improvements found upon first-class race courses in this country or in Europe. A beautiful shell road is being built from near the Mission to the Park, about three miles in length, and will cost probably $30,000" (Langley 1864: 10).

Nevada City mining millionaire George Hearst, who later set his son up in the newspaper business, was the principal investor mentioned. Horse racing had become the passion of the times, and the sizes of wagers were recorded among the chronicles of civic events and disasters in the annual chronologies of the city directories. The old Pioneer Race Course, north of Army Street between Potrero Hill and Mission Street, was the only track shown on the 1861 Wackenreuder Map. The birdseye views of the rapidly expanding city of 1868 show the more splendid facilities offered by the Ocean House Race Course near Lake Merced and Bay View Park.

Perhaps the day-long outings to these remote racetracks were a major part of their attraction, for picnic areas closer to the city and accessible by public transit were, both before and afterward, the frequent destination of Sunday and holiday crowds. Plate 8 shows horses and buggies, as well as a couple of racing sulkies, drawn up around the pavilion at Bay View Park. This Italianate

villa, with its verandas overlooking the swamp and barren hills, does not (remarkably) appear to have been in any way connected with the promotion and sale of adjacent real estate. As in the case of the Pioneer Race Course and the Union Course, which were built on somewhat soggy lowlands near the Mission, the site selection of the Bay View Course may have been an expression of the theory that spongy underlying marsh provided a springy surface that enhanced the speed of the racers—not all of whom were horses. The 1864 city directory chronology noted a Washington's Birthday "foot race for the Champion belt."

A birdseye view of the area is seen in Plate 9, with the meandering sloughs much in evidence. The roads, buildings, sloughs, and windmills seen in this view can be related closely to the 1869 Coast Survey Chart (Map 2b). As can be seen by the overlay of the Sunnydale/Yosemite facility, only the perimeter of the track will be transected by the proposed facilities. The dark line extending from the hill on Thomas Street, across the marsh and sloughs to a building on the southeast side of the track, probably marks the dike or bulkhead as well as a roadway.

Although Lucius Beebe dated Plate 10 in the 1880's, this motley group of afficionados of the "Sport of Kings" must have been taken somewhat earlier. Notes accompanying the resurvey of the shoreline area by the Coast Survey in 1882 record the demise of the Bay View District's only popular attraction prior to the construction of Candlestick Park: "In the bight or indentation approximately one and one-half miles westward from Point Avisadera, a radical change has taken place. The marsh-land area in the bight, which had at one time been reclaimed from the flow of the tides by the building of a bulkhead and was the site of a race track, has been eroded and degraded below its former level, so that at high-tide it is, except in a few small detached spots of higher level, entirely submerged, and of the track alluded to, a well known feature shown upon our publication entitled 'Peninsula of San Francisco,' hardly vestige remains" (Rodgers 1884).

The 1895 resurvey of the area shows the tidal marsh still reoccupying most of the site of the former Bay View Race Track. The possibility of recovering any historical cultural resources from the Bay View Race Track is remote, as only the outer portion of the track is transected by the proposed Sunnydale/Yosemite sewer, and as the bay reflooded this area until it was reclaimed a second time in this century.

Plate 8: Bay View Hotel and Pavilion in about 1879...
Muybridge made this stereopticon view of the ornate pavilion built in a favored Italinate architectural style. At a time when amusements were scarce, this was a popular outing place. Its main attraction was the fast track afforded by low-lying marshlands. [Bancroft Library]

The Potrero and Bay View Railroad—Horsecars on Rails

The completion of Long Bridge across Mission Bay (1865) made the Potrero easily accessible to the city, with the consequent rapid development of industry and associated supporting services and residences. It appeared that the much larger land and waterfront area of Hunters Point would quickly respond to the same stimulus of development with the extension of the bridge southward along the line of modern Third Street. The 1868 city directory announced that in the last year, "The Potrero and Bay View Company have, by the removal of the obstructions that formerly existed in the deep cut in Potrero Hill, opened their road throughout its entire length, cars now running to Bay View, a distance of five miles from City Hall. Intersecting this road near Bay View, a branch track is now being built, already more than half completed, leading in a westerly direction, two miles to the grounds of the University Extension Homestead Association, a locality that is fast being improved and settled with a desirable population" (Langley 1868: 39).

The convenience of horsecar travel to San Francisco from Hunters Point and the Bay View failed to produce the anticipated intensive development. The contemporaneous construction of the great stone dry dock at Hunters Point was essentially irrelevant to the improved transit access, and a brief flurry of homestead association activity resulted in only a modest scattering of new construction. But the opening of the line did permit the relocation of the "Butcher's Reservation" to the south side of Islais Cove in the vicinity of Railroad Avenue (Third Street), and the homestead associations did parcel out the land in the smallest units that the market would bear, including 25-foot house lots.

The horsecar line was directly involved with the more than coincidental survey and sale of vast state tidelands holdings in the area and in the homestead associations' promotions. The bridge and the railroad itself were closely connected with the South San Francisco Homestead and Railroad Association, which owned the major portion of Hunters Point, as well as tidelands granted by the state prior to the major tidelands sales of 1869. Most of the South San Francisco Association's property was dry land—which is more than can be said for a goodly part of some of the other homestead associations' properties.

Homesteading South San Francisco

A San Francisco phenomenon of the late 1860's was the proliferation of homestead associations, organizations ostensibly formed for the convenient sale of town

lots, whereby even the clerk or mechanic of thrifty disposition might acquire the property necessary for the construction of a modest home at low cost. A more or less standard description of the homestead associations of the time is here quoted from Langley's **City Directory of 1870:**

> Owing to the number and general success that has attended the formation of these institutions, they may be considered one of the features of San Francisco, having been developed here on a grand scale and served as powerful auxiliaries in hastening forward the city's expansion. These associations, though inaugurated some years since, have rapidly multiplied during the past two or three years, the list of those having their headquarters in San Francisco numbering about one hundred and fifteen, the lands of the greater portion of these being situated near the city. . . . So manifest had the plan of combining small amounts of capital for the purchase of land at wholesale prices become, that recently it has been adopted for securing not only city homes, but also tracts for horticultural, vinicultural, and even farming purposes. . . . Among other existing causes tending to encourage this method of acquiring small parcels of real estate has been the large aggregations of land growing out of the former system of Spanish grants, which, being held mostly by men of wealth, could only be purchased in extensive tracts, thereby placing it beyond the reach of parties of small means. . . . Hence, the alacrity with which they have taken shares in the various Homestead Associations set on foot, and the general, and in most cases, marked success that has attended these movements.
>
> It not being our object in this place to speak of the properties or operations of these institutions, we can only remark, in a general way, that they have almost always resulted in a great benefit to their founders and original shareholders; no examples of decided failure having yet occurred among those undertaken in San Francisco, while the advance in the value of real estate so secured has generally been marked and rapid.

Indeed, the editorial restraint shown in not describing any specific homestead association properties, prospects, or operations seems to have been widely imitated and, with the exception of the intensive and sometimes baffling record of the legislative investigations of the Golden City Homestead Association, a patently fraudulent operation involving a certain amount of dry land on the north side of Islais Creek and considerably more submerged acreage (some of it not filled to this day), we find little in the way of description of the various **modus operandi** of these promotions and the degree to which their ostensible ends were diligently pursued.

The "marked success" mentioned in the account above, it should be noted, may relate more closely to the "great benefit to their founders" than to the

Plate 11: **The horsecar line with some would-be San Francisco Homesteaders at the Haley O'Neill Tract, 1869**...For some it was just a pleasant Sunday outing but for others it was a glimpse of their future California cottage. The horsecar line made it possible for the average working man to commute to the country, and the Homestead Associations developed the down payment system so that every couple's dream of owning their own California home, no matter how small, seemed possible. [Bancroft Library]

alacrity with which parties of small means took up the shares. Further, it may be that in more than the two cases we have investigated to a slight depth, it will be found that "founders and orginal shareholders" is to a remarkable degree a redundant expression. It would seem that failures would almost by definition be absent, as even a trifling volume of sales should have paid the expenses of incorporating, surveying, and printing of maps. Finally, it should be noted that the concluding sentence quoted above, to the effect that the real estate involved was a good speculation, conspicuously avoids mention of the actual improvements made upon the properties.

The Homestead Associations. An article in the **Sunday Chronicle** of September 8, 1889, credits the formation of the homestead association idea variously to an unnamed Frenchman, who in the post-Gold Rush years subdivided and sold a parcel near the Mission on the installment plan, and to Washington Bartlett and others, who subdivided a large lot near the Pioneer Race Course. Whatever the case may be, in 1861 the state legislature passed "An Act to authorize the formation of Corporations to provide the members thereof with Homesteads," and a supplementary act in 1864.

The San Francisco Homestead and Railroad Association, with 2,000 75 x 100 foot lots covering Hunters Point and the adjacent waterlots out to a depth of supposedly six feet, was formed in 1862. This association was rather obviously a purely speculative venture, as access to the point had been improved since Hunter's abortive development attempt of the early 1850's mainly by the advent of the San Bruno Toll Road, which provided a crossing over Islais Creek but itself came nowhere near the property. The name of the association conveys the ostensible promotional idea—tracks to the city—but this was before Long Bridge had been constructed over Mission Bay, and San Francisco's horsecar system was yet in a very early stage of development.

In testimony before a special committee of the California State Senate appointed in 1870 to investigate allegations that the Golden City Homestead Association, the beneficiary of a large grant of tidelands, did not and never had existed in fact, information as to the progress of development by the South San Francisco Homestead and Railroad Association came out. The association had donated 29 or 30 acres at the tip of the point for the construction of the dry dock, it had built a road, it had built a 200-foot wharf. And how many improvements had been accomplished by the eager homesteaders? Pressed by

his questioners, witness Silas Selleck, owner of 9 shares (equivalent to 27 lots—about 4.67 acres—in the distribution), reluctantly allowed that there might have been a dozen structures built on the 500 lots of the initial distribution, before the final distribution of 1000 additional lots to the shareholders. The associations's work having been performed, it went out of existence, a new association, the San Francisco Dock Company (not the dry dock company, it was testified) springing to life on the basis of the 500 remaining waterlots (Cal. Journal 1870: III, 20-30).

The speculative thrust of the South San Francisco Homestead and Railroad Association was clearly indicated by the same witness. When asked how many lots he owned, he replied, "Building lots, or the original size?" The building lots would presumably have been three to each original 75-foot lot. The most obvious and important improvement of the association was its subscription to the Potrero and Bay View Railroad of $25,000, followed by an additional subscription of $40,000 by the successor South San Francisco Dock Company. As Mr. Selleck testified, this largess was in lieu of some $75,000 that the original homestead association had thought it would cost the shareholders to build the railroad. As it was, the shareholders got their three lots per share after paying in $75,000. That would work out to $150 per share, or $50 per original lot, or $16.66 per future building lot. Perhaps some assessments raised the cost, though the word does not appear in the testimony.

The railroad investment was critical to the speculation. Selleck was also a shareholder in the Central Park Homestead Association, located on the north side of Hunters Point immediately east of the projected bridge and railroad. "We also subscribed towards the Bay View and Potrero Railroad, and I know that before the railroad was finished our land was worth scarcely any more that it was before; today those shares will average $2500 apiece; it was worth a half a million dollars to us; I consider that the railroad enhanced the value of our land that much" (**Ibid**).

The Accomplishments of the South San Francisco Homestead Associations

It is apparent from U. S. Coast Survey and other maps that the homestead association movement did not result in a building boom in South San Francisco But it did result in building. The speculators who launched the homestead associations certainly sought to realize the major portion of their gains through

Plate 12: The Haley O'Neill Homestead Tract, 1869...
By moving his camera three times Eadweard Muybridge was able to create a panoramic view. In each plate the developers and their sign were moved to the foreground, as these were stereoptican views--probably the first ever made of a real estate development.

Muybridge was standing on a rise on Phelps Avenue with his camera pointed north towards Islais Creek with Long Bridge crossing at the upper right. The edge of the marsh, in 1869, meandered along the present line of Evans Avenue. The Sunnydale Yosemite construction would pass through the marshy area beyond the houses in the upper-right plate. In the upper-middle plate the construction would pass through Islais Creek salt marsh just above the area marked by the church tower and windmill. [Bancroft Library]

the advance in the value of the shares (or land) that they took for themselves. Smaller speculators also looked to such advance in prices; Silas Selleck visited his property frequently, and "was just about to make improvements on part of them." But somebody had to make actual improvements to hasten the advancement in value of adjoining lots, and the homestead association arrangement was well calculated to result in some building activity if there were any attraction in occupying the site at all. The real possibility for the potential homeowner to secure a lot at reasonable cost, the momentum generated by the publicity and sales, the ability of the association to generate enough capital to assist in such improvements as the Potrero and Bay View Railroad, all contributed to a climate in which some share buyers would in fact build a house or a store or a minor industrial establishment, such as a boatyard.

We can see this going on in the case of the Haley & O'Neill Tract Homestead Association of 1870. Since describing this tract in connection with the Southeast Treatment Plant (Olmsted 1980: 105ff.), we have uncovered further information about this promotion. The Homestead Association, as distinct from the "homestead property" of the O'Neill and Haley Tract, stemmed from an auction purchase by Messrs. Duncan & Co. of 400 25-foot lots on contiguous blocks of the tract at an average price of $446 per lot. These lots they proposed to sell for $510, a payment of $10 entitling the buyer to one share (or lot) in the association, with interest free payment of the balance due at $10 per month. The articles of association include newspaper blurbs explaining that not only were all of these lots on dry and buildable land, but that the new association was offering the lots at so little advance over the purchase price because they wanted only a very modest and safe investment.

A return of $25,400 on a $178,400 investment over a period of some four years appears unbelievably modest. In all probability the "success" of this venture was pegged to the principals' picking up both choice lots and unsold lots, the value of which was to be enhanced by real improvements on the part of shareholders who set up residences or businesses.

That real improvements were made on this tract on the east side of Railroad Avenue south from 14th Avenue (Newhall Avenue) is illustrated by the accompanying photographs. The Haley & O'Neill Homestead Association of Messrs. Duncan & Co. appears to have been the first subdivision—perhaps anywhere—to have been promoted by photography. Eadweard Muybridge, a pioneer in all sorts of exotic photography, including sequential stop-motion pictures

showing the movements of people and animals, was the fellow they hired to project the image of this exciting homesteading activity. No longer was it necessary for the prospective buyer to consider suspiciously the blandishments of a salesman urging a long ride out to South San Francisco to view the property: he might peruse the photographs and then make up his mind whether or not to look over the place. The camera never lied (as did promotional lithographs)--but it did choose some good angles to view in glorious 3-D stereopticon realism. Figure 12 shows some of those pictures arranged to give some impression of the image sought by the promoters.

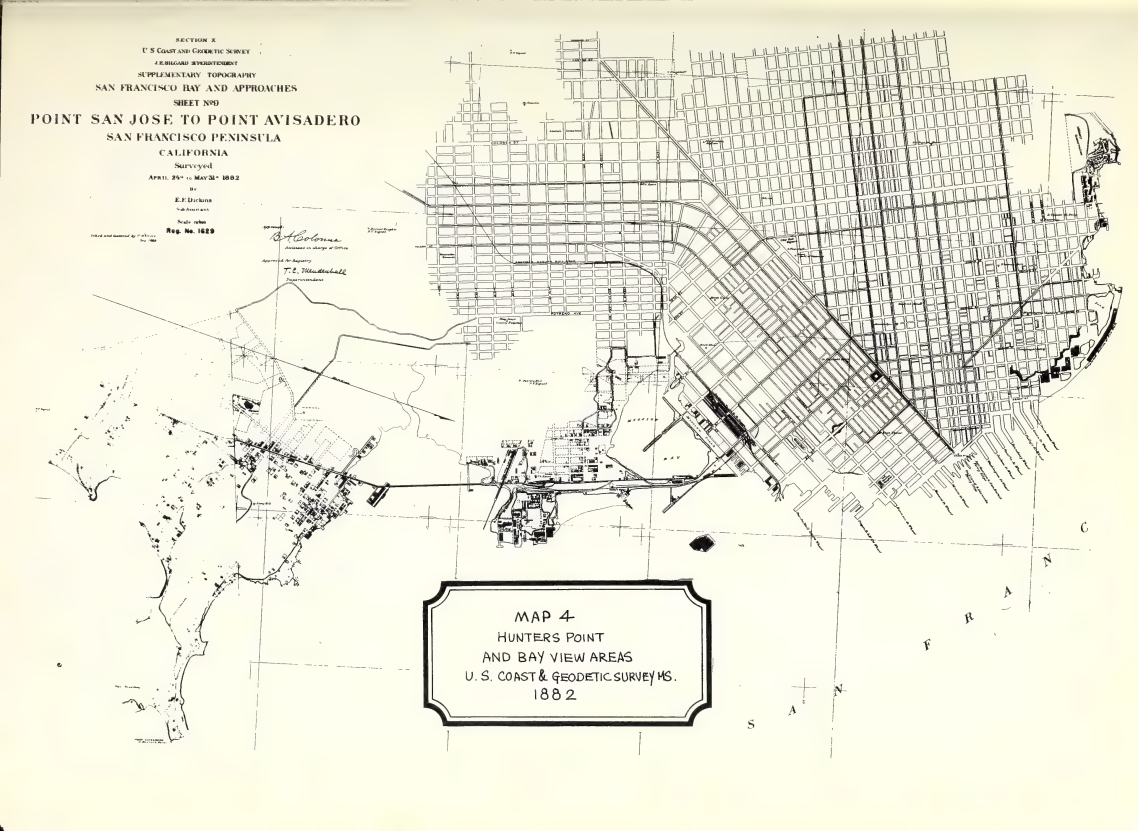
Relationship of Homestead Associations to Historical Cultural Deposits

Not only did the homestead associations attempt to promote actual construction and improved transit (if only to enhance the value of unimproved property), but they fixed the parcel and street locations out in what had been the country-side, with its not necessarily regular orientation and location of buildings. Thus, from the standpoint of the probability of encountering subsurface historical cultural remains of importance, it must be pointed out that there was little building activity before the South San Francisco lands in the Sunnydale/Yosemite and Hunters Point areas were laid out in the pattern that persists to this day. Therefore, one would not generally anticipate finding remains of buildings or significant deposits of artifacts in the streets, where the major linear portions of the proposed excavations are scheduled to occur.

The rule that deposits of cultural materials associated with immediate occupation and use are not likely to be found in the streets may have some exceptions, as in cases where lands in the Yosemite Canal area remained so underdeveloped until far into the 20th century that streets were not graded, and when not needed for passage might be farmed, along with adjacent property. Still, improvements such as wells, which often contain quantities of cultural debris, ordinarily would not have been placed in the line of projected streets.

Farms and Factories in the Bay View--Late 19th Century, Early 20th Century

The aftermath of the homestead association movement left the scattered fenced plots and buildings that we see in Map 4, an updating of the 1869 Coast Survey map of the San Francisco Peninsula. This survey was undertaken for a new "San Francisco Entrance" chart of 1883, published in 1884. As the 1882 manuscript


SECTION X
U S COAST AND GEODETIC SURVEY
J E HILGARD SUPERINTENDENT
SUPPLEMENTARY TOPOGRAPHY
SAN FRANCISCO BAY AND APPROACHES
SHEET N°9
POINT SAN JOSE TO POINT AVISADERO
SAN FRANCISCO PENINSULA
CALIFORNIA
Surveyed
APRIL 25th to MAY 31st 1882
By
E.F. Dickens
Sub Assistant
Scale when
Reg. No. 1629
MAP 4
HUNTERS POINT
AND BAY VIEW AREAS
U. S. COAST & GEODETIC SURVEY MS.
1882

EDITORS NOTE: THIS MANUSCRIPT SHEET WAS A PLANE TABLE DRAWING ACTUALLY USED IN THE FIELD IN 1895.

MAP 5
CANDLESTICK POINT
AND BAY VIEW AREAS
U.S. COAST & GEODETIC SURVEY MS.
1895

sheet (Map 4) shows, the Coast and Geodetic Survey (as it had by then become) limited the scope of its 1882 resurvey work. The chart suggests that there was some uncertainty as to where to stop as the survey proceeded inland from the shoreline. Perhaps it was still thought that the whole city should come within the scope of the resurvey, but time and money were not available. A survey of the entire inland portion of the city was apparently not considered beyond the cartographic mandate of the U. S. C. & G. S., for the 1899-1900 resurvey stretched from Ocean Beach to the bay.

Whatever the reasons, the resurvey stopped around the east side of Railroad Avenue. Fortunately, it included in detail all of the Sunnydale/Yosemite and Hunters Point facilities areas except the part south of Candlestick Point. It would also appear, from the character of the manuscript map, that structures, roads, and other man-made features were systematically identified in the area surveyed east of Railroad Avenue. In the case of a part of the south shore of Hunters Point and the shore of the marsh formerly occupied by the Bay View Race Course, the dotted lines may be taken to mean that there were no new structures to report—**i.e.,** the 1869 survey was to be traced.

The dotted shoreline of the salt marsh between the proposed Sunnydale/Yosemite facilities on Carroll and Thomas avenues certainly does not indicate the extent to which occasional salt water inundation affected the Bay View Park area. The absence of structures, as well as the 1895 resurvey, suggest that spring tides flooded well to the westward of Ingalls Street.

The small size of the fenced plots in the area east of Railroad Avenue may give an erroneous impression as to the amount of market gardening or other agricultural activity that was going on in the area at the time, for such land use was not one of the features the surveyor recorded anywhere in the case of this map. Comparison of the area of central San Francisco newly surveyed by the Coast Survey in 1867 with the Coast Survey map of the Peninsula published in 1869 shows much more agricultural use in the area covered by the new survey than was shown on the published map. The reason for this was not only the smaller scale of the published map, but the fact that such current detail for the rest of the map was unavailable, and hence was omitted. In the case of the 1895 resurvey (see Map 5b), the manuscript does show all of the cultivated fields in the Bay View Park area—and in some cases fields are not shown as entirely fenced. Unfortunately, we have not found any pictorial sources that would confirm the approximate extent of agricultural use around 1880-1885.

It seems reasonable to assume that with the growth of the city, the location of quite a number of new buildings in Bay View, and contemporary comments indicating the prevalence of market gardening suburbs where water was available, the agricultural pattern was probably about the same as that shown in 1895 (Map 5b).

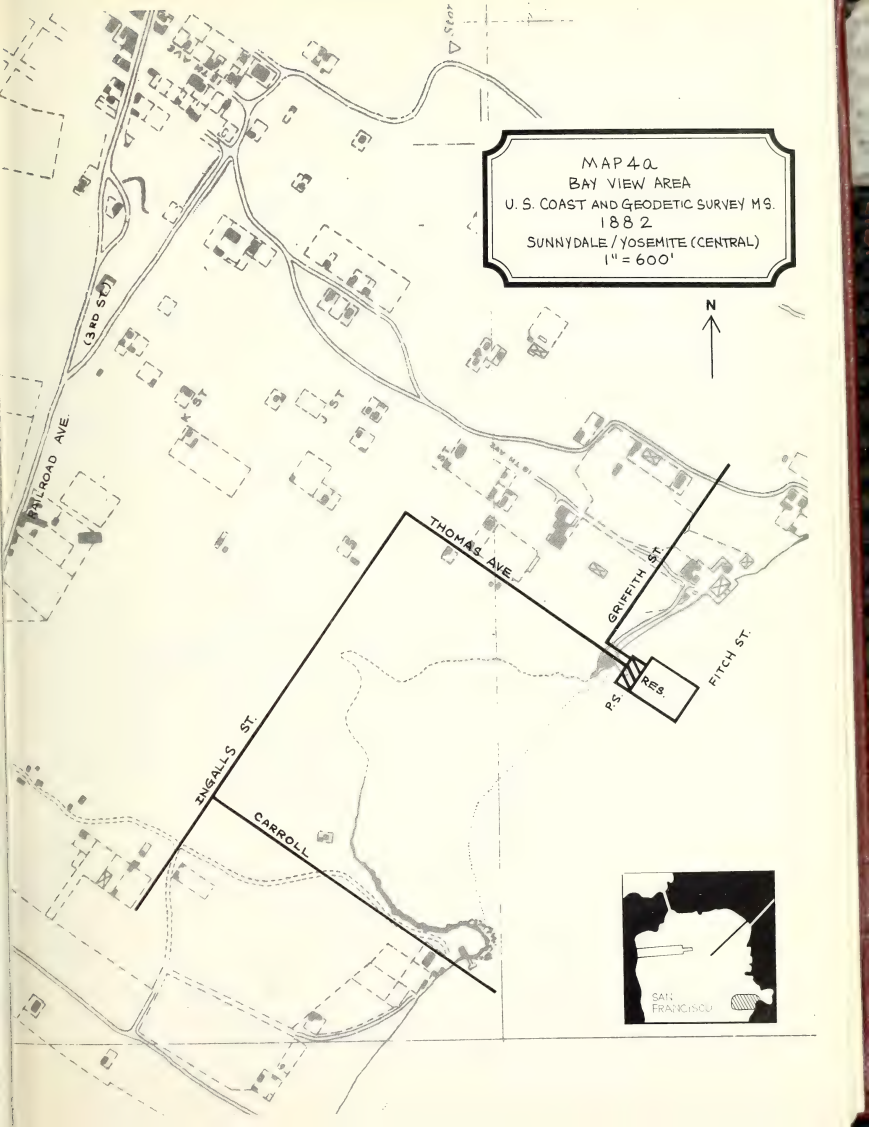
The following section, dealing in part with Chinese market gardening, discusses the ethnic change in farm workers in the Sunnydale/Yosemite area through the last quarter of the 19th century and the early years of this century. Here we call attention to the predictable result of the homestead association subdivisions—the structures seen on the 1882 survey are aligned to the future street grid to a striking degree.

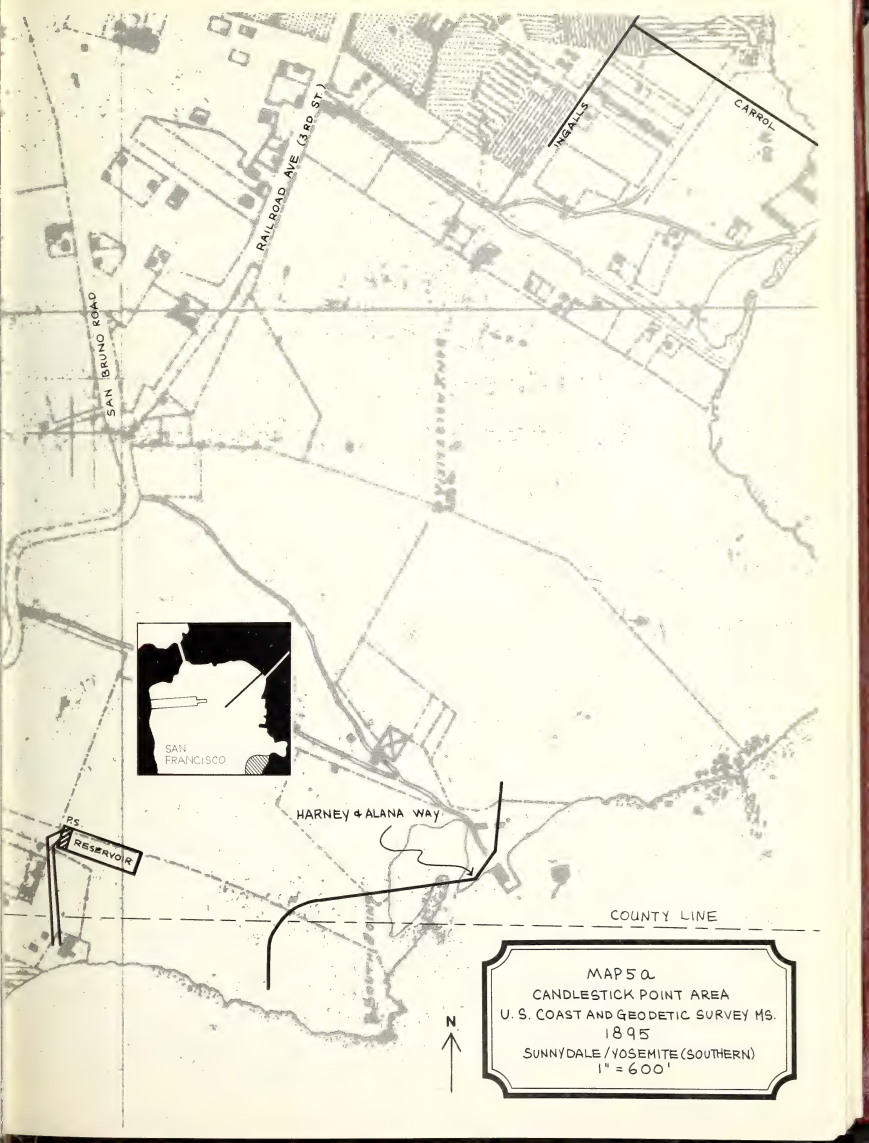
But to get a better picture of any archaeological potential associated with the farming activity, we turn to the 1895 survey. Here we see that the Ingalls Street alignment transects one small structure about 50 feet north of Egbert Avenue. There is an existing sewer on the east side of Ingalls Street with an invert grade almost identical to the proposed sewer on the west side of the street (about -20'). The original grade level of the location of the structure on Ingalls near Egbert would have been about +6-7; present elevation of the street is about +10. Therefore, foundations or any materials buried in trash pits, privies, or wells may be present. The structure appears to lie on the west side of the street, but it is of course not possible to predict exactly where buried cultural materials not within the foundation line of the structure might be located.

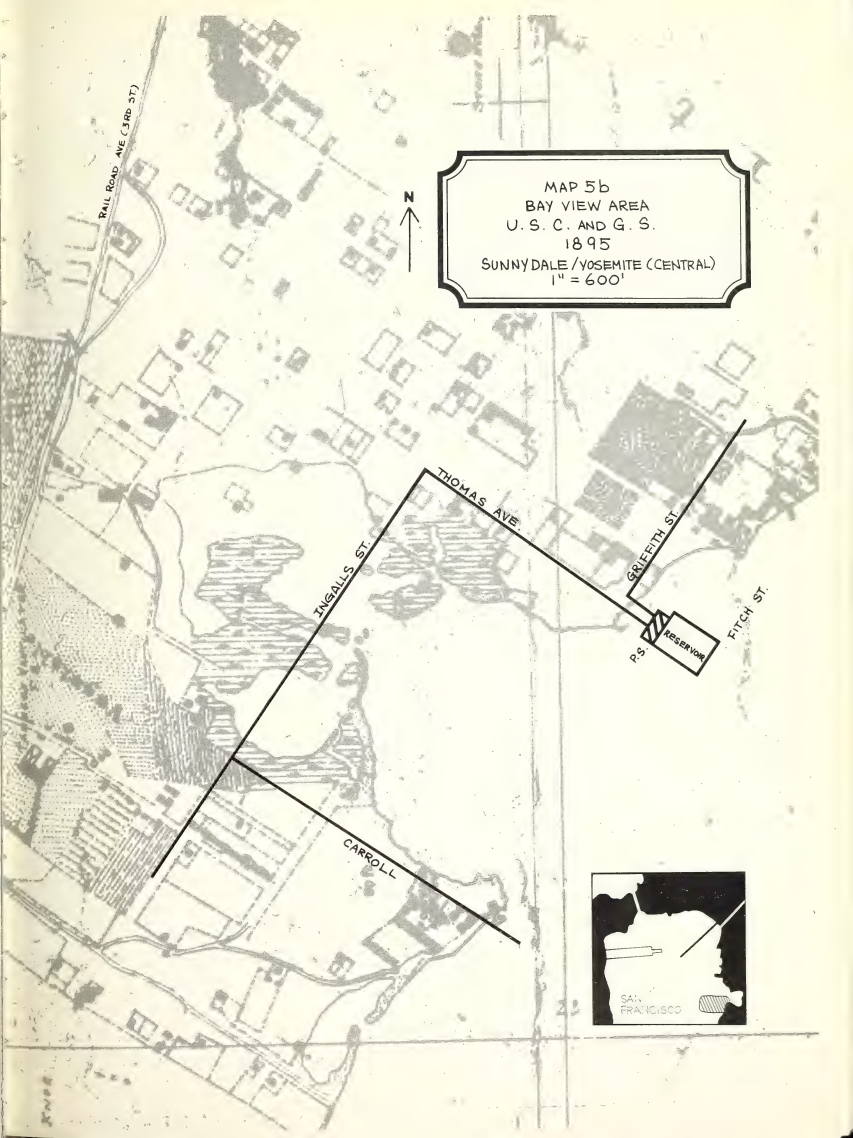
The particulars of this site are described as illustrative of the distinct possibility of encountering discrete sites of uncertain potential. Another such site is located on the 1882 and 1895 maps on the west side of Ingalls, about 100 feet north of Van Dyke. Between Hawes and Griffith the entire fence line of the yards of the structures occupying the block bounded by Hawes, Thomas, Shafter, and Griffith has encroached southward on Thomas Avenue—but this stretch of Thomas was the upslope of a small hill since graded away.

In summary, while the possibility of encountering subsurface deposits associated with the farming activity of the late 19th century is present, the early street layout (however imaginary insofar as actual grading and opening of the street may have been) and the paucity of locations which would appear to have any archaeological potential in those streets makes the **probability** of encountering any specific site productive of important information low.

Further development of the area, through the first decade of the 20th


MAP 4a
BAY VIEW AREA
U. S. COAST AND GEODETIC SURVEY MS.
1882
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 600'
N
BAY VIEW
(3RD ST.)
RAILROAD AVE.
THOMAS AVE.
GRIFFITH ST.
FITCH ST.
P.S.
RES.
INGALLS ST.
CARROLL
SAN FRANCISCO


INGALLS
CARROL
RAILROAD AVE (3RD ST.)
SAN BRUNO ROAD
SAN FRANCISCO
HARNEY & ALANA WAY
PS
RESERVOIR
COUNTY LINE
N
MAP 5a
CANDLESTICK POINT AREA
U. S. COAST AND GEODETIC SURVEY MS.
1895
SUNNYDALE / YOSEMITE (SOUTHERN)
1" = 600'


MAP 5b
BAY VIEW AREA
U. S. C. AND G. S.
1895
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 600'
N
RAIL ROAD AVE. (3RD ST.)
THOMAS AVE.
INGALLS ST.
GRIFFITH ST.
FITCH ST.
P.S.
RESERVOIR
CARROLL
SAN FRANCISCO

century, does not appear to have resulted in any increase in the probability of significant deposits of cultural materials associated with agriculture. While it was more than a quarter century from the Coast Survey map of 1882 to the date of Plate 13 and its companion view from Visitacion Knob (Plate 14), development in the Yosemite Canal area proceeded slowly. The two plates unfortunately do not form an exact panorama; they were taken from separate points on Visitacion Knob looking north. The rock outcropping in the foreground of Plate 13, standing about 400 feet above the Bay View district, can still be seen at the western end of the ridge, overlooking the freeway. The conspicuous street in the background, running in a line between the outcropping and the huge natural gas tank on the Potrero, is Railroad Avenue, or Third Street. The large building on the rise at the center of the photograph is the new Catholic Orphan Asylum opposite the end of Bay View Street. Mt. Saint Joseph's Orphanage, formerly the Magdalen Orphan Asylum, dating from the late 1860's and seen in one of the Muybridge views of the Haley O'Neill Tract Homestead Association, is just out of sight over the hill. It is probable, given the desultory pace of progress, that many of the speculative land buyers of the late 1860's felt the whole district to be an orphan of San Francisco.

The area of particular interest to us in this photograph is the lowland seen directly beyond the crest of the outcropping at the right. Here market gardens and large windmills dominate the location of the former Bay View Park, on either side of Ingalls Street.

The second view from Visitacion Knob, Plate 14, shows the site of the orphan asylum at the far left, just before the orphanage was built. The dates given on the originals of these two plates are 1908 and 1912 respectively, which indeed bracket the date of the orphanage. The farms at the left in Plate 14 are those at the right in Plate 13. Ingalls Street is marked by the trees and white buildings beyond and to the right of the smokestack of the factory in the foreground. This cluster of buildings, to the left of the low knob bounding the south shore of the salt marsh beyond, is the square group of four structures 100-150 feet west of Ingalls, between Donner and Egbert, seen on Map 5b. The little dark-colored house farthest left in this group is a fifth structure—probably the one shown situated on Ingalls street in 1895, as described above.

The hill in the center of Plate 14, the hill with the prominent lines of cypress (?) trees marking Donner and Egbert avenues down to the water's edge,

blocks the view of marsh around the head of the present Yosemite Canal. (The top of this hill at the center of the photograph blends into the background of Hunters Point; its outline is perceived by projecting the two lines of trees in the form of an arch over to the houses on Ingalls Street.)

Wharves and Buildings at the Ends of Carroll and Thomas

In the foreground of Plate 14 we are looking at the plant of the Atlas Paving Company, occupying the western half of the block bounded by Ingerson, Hollister, Griffith, and Fitch. Following along the shoreline to the right, the point of land with the small pier, warehouses, and buildings partly concealed in the largest clump of trees marks the end of Carroll Avenue. The proposed sewer alignment transects the outer (southernmost) part of the wharf, and at least two of four structures to the left of the white warehouse at the head of the wharf. The wharf and some or all of the buildings situated half way between Fitch and Griffith streets appear on the 1882 as well as the 1895 Coast and Geodetic Survey maps. It is on the 1895 map that the legend "Powder Houses" appears attached to this complex of buildings and wharf.

Wirth Associates conducted a test excavation on the site of the Gibbons and Lammot powderhouse on the Potrero in 1979. The excavation revealed the foundations of this Gold Rush structure and details of its construction, insulation, and ventilating system (Wirth Nov. 1979: 30-36). A "dearth of artifactual remains" proved disappointing from the standpoint of attempting to reconstruct any behavioral patterns at the site during the period the magazine was in use. Through the discovery of extant correspondence between Gibbons and Lammot and the DuPonts, Wirth Associates was able to reconstruct the tribulations associated with the storage and marketing of powder in San Francisco during the early 1850's, even to the specifications of the powder house they proposed to build on remote Potrero Point. Thus, while the location of the powder house on historical maps and the analysis leading to a decision to undertake an archaeological test program brought together some interesting historical information, the test excavation added scanty data, and it was concluded that further excavation could add almost nothing of importance.

The location of two of the structures that may be transected by the proposed Carroll Avenue excavation is from 300 to 450 feet west of the centerline of Fitch Street. The present elevation of Carroll Avenue in this area is about

Plate 13: Visitacion Knob Climbers wore derby hats in 1980...
Ingalls Avenue angles out to the right, just past the crest of the rock. The market gardens and windmills mark the area of the former Bay View Park. [California Historical Society]

Plate 14: A view to the east from the knob on Visitacion Point...
Almost forming a panorama with Plate 13, this view shows Ingalls Avenue to the left, leading past the smokestack to the wharf. The dark rows of cypress trees, to the right, mark the line of Donner and Egbert streets in 1912. [California Historical Society]

5 feet above city base. The elevation of the land where the structures were located was originally from about 5 feet to about 8 feet above city base, which suggests that original foundations may well be intact.

The powderhouses were probably located at the foot of Carroll sometime in the 1870's, when Potrero Point was getting too crowded for powder magazines to be considered good neighbors. Gibbons is said by Wirth Associates to have gone out of business in 1873, and as we pointed out above, a wharf identical to the one seen on the 1895 map appears on the 1882 survey, together with shoreside buildings. Late procurement of a scaled-up and readable version of the 1895 U. S. C. & G. S. map and identification of the lettering has precluded a city directory search of the dates and occupancy of the Carroll Avenue powderhouses.

Though one cannot be certain that excavation of the foundations of these structures might not produce information of historical interest beyond that of the Gibbons and Lammot magazine, the probability is that it would not. However, one different aspect to the situation obtains from that of the Potrero magazine.

Wirth Associates concluded its "Significance Evaluation" of the Gibbons and Lammot magazine by pointing out, "As a deeply buried site with limited public access, the interpretive value of the site is not great." In the case of the Carroll Street complex, a large part of the powderhouse property lies within the Candlestick Point State Recreation Area. The combined **Resource Management Plan, General Development Plan,** and **Environmental Impact Report** of June, 1979, states that "The area has no known cultural resources in the traditional sense" (State of Calif. 1979: 12). This unnamed point of land at what was once the foot of Carroll Avenue may be an exception.

The Wharf at Thomas Street

Among the few improvements undertaken by the South San Francisco Homestead and Railroad Association, as noted earlier, was the construction of a wharf about 200 feet long. The only wharf, outside of the drydock company property at the tip of Hunters Point, that is to be seen on any map of the late 1860's within the boundaries of the association's property is one about 200 feet long extending southeast from the intersection of Thomas and Griffith. The orientation of the wharf and street is such that the wharf angled southward, off the line of Thomas at its outer end. The Allardt Tide Lands Map of 1869 and the U. S. C. & G.

S. manuscript map of 1882 show this wharf commencing about 50 feet east of the intersection of Griffith.

The use of this landing is not clear to us. The curious roadway, which may be mostly the original dike keeping tidewater out of Bay View Park, could be one association: the wharf may have been first used in connection with bringing in materials for the dike. Another connection springs from the relationship of prehistoric sites to buildings seen on the 1869 Coast Survey chart (Maps 2, 2b). Hunter's site, near the shoreline at Palou Avenue, the fenced square with three houses on it on the west side of Ingalls between Palou and Quesada, and the house close by the wharf itself were all on or adjacent to prehistoric sites; the connection suggests the presence of springs. The prehistoric midden material was noted for its value as fertilizer. Hence, as the 1869 birdseye view of the race track and surrounding countryside (Plate 9) also suggests, the wharf was probably used in transshipping agricultural produce. It appears from the testimony of the investigative committee of the legislature cited earlier that the wharf was built before the opening of the bridge for the Potrero and Bay View Railroad, when it would indeed have provided the only convenience for transport of bulk products to the city.

There is no reason to believe that this wharf, or the structure seen alongside it on the 1882 map (Map 4a), would be productive of historical cultural artifacts or remains of National Register significance. The wharf and building are absent on the 1895 U. S. C. & G. S. survey, the 1911 Chevelier map, and the 1919 Sanborn Map.

Other comments on the activity in the vicinity of Thomas Avenue and Griffith Street after the turn of the century will be found in the following section of this report.

Potrero Pt.
ISLAIS CREEK
INDIA BASIN
HUNTER POINT
Double Rk.
Shag Rock
SOUTH BASIN
Candlestick Pt.
SOUTHERN PACIFIC RR YARD
Visitation Pt.
Bruno Mountain
Sierra Pt.
SCALE
MAP 6
SAN FRANCISCO IN 1911
AUGUST CHEVALIER

THE CHINESE IN SOUTH SAN FRANCISCO

San Francisco's Chinese population has been so closely associated with Chinatown as the place where the Chinese lived and worked that there is little information about the Chinese who lived in small working groups all over the peninsula. Certainly, urban Chinatown remained the focal point of the Chinese community's social life, but the groups of Chinese who established shrimp-fishing villages on Hunters Point and farther south, the Chinese who raised the fine vegetables in the fields in the outlying areas of the city, the Chinese who worked as groups in a variety of factories where they also lived—of these Chinese and their day-to-day life, we have no knowledge. They remain a large "shadow population" to the researcher, for reasons we shall examine below.

The Significance of Chinese Archaeological Resources

Archival information regarding the Chinese in San Francisco tends to fall into three classes: (1) statistical information that relates to immigration, wages, and labor; (2) published accounts of the Chinese as immigrants, which tend to be colored by the viewpoint of the writer as part of, or as a reaction to, the intense anti-Chinese feeling that can be found as early as 1853 in Soule's **Annals of San Francisco,** but which came to a boiling point during the economic depression of the 1870's and early 1880's; (3) legal cases that evolved in the same period from the anti-Chinese ordinances passed by the San Francisco Board of Supervisors. The researcher may be led to these legal cases by way of newspapers, or the litigation may lead the researcher to the reaction in the press. The Chinese were always good for "colorful" newspaper feature stories

based on the latest horror statistics from the San Francisco Municipal Health Reports or police arrests in violation of city building codes, or fishing codes, or other anti-Chinese ordinances.

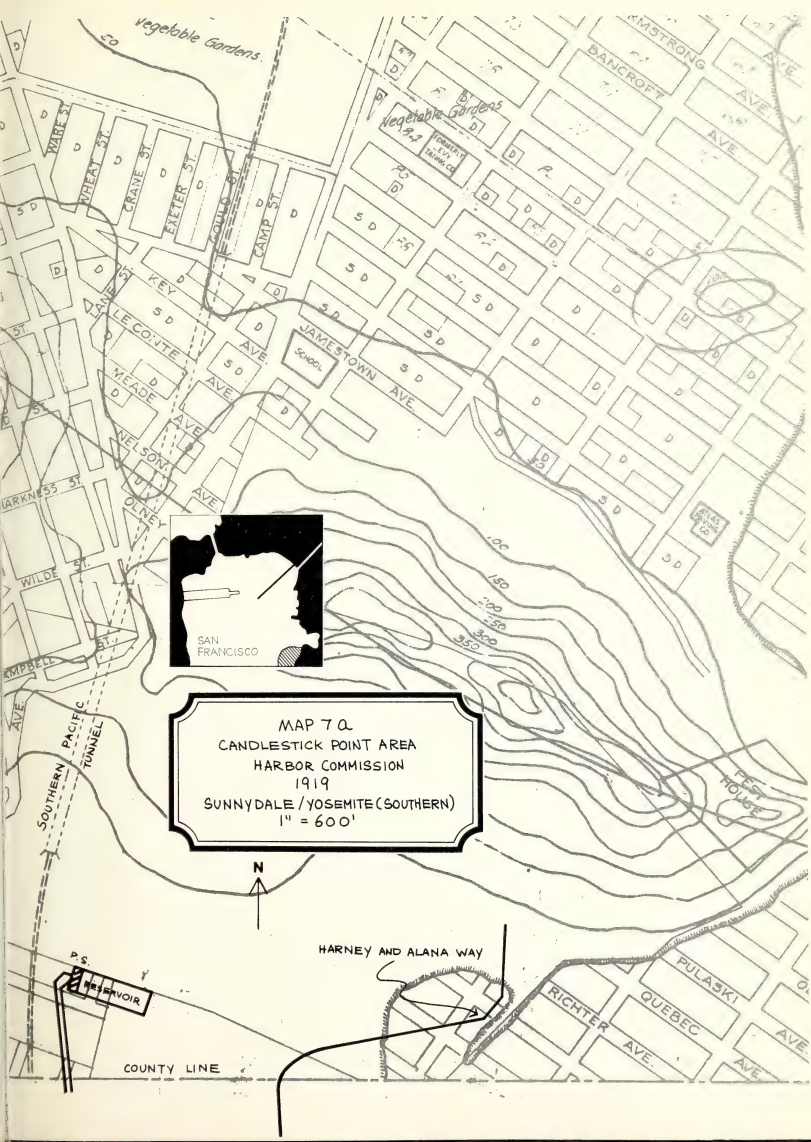
As can be seen from the sources above, archival data about Chinese life in and about San Francisco are lean indeed and frequently tend to be so emotionally biased that the researcher has to bring together very slender clues and put them into the context of what is known, only to realize how much is **not** known. For this reason **any** archaeological data as to the Chinese lifestyle on its fragile but persistent subsistence level are valuable.

Background of Chinese Settlement and Activity on the Outskirts of San Francisco

The predominance of Chinese labor in some of San Francisco's most important manufactories of the 1870's is commonly known, as it was conspicuously associated with the anti-Chinese agitation of the Workingmen's Party and its celebrated leader, Denis Kearney. While Kearney was haranguing the sandlot mobs and cheering crowds in Union Hall with his easy solution to their financial problems, the slogan "The Chinese Must Go!" the manufacture of boots and shoes, of cigars, and of textiles and clothing, appeared to be in the process of being "taken over" by Chinese operatives. The 1880 census indicated that in these selected industries employing 13,359 workers, 6,446 (or approximately 48%) were Chinese. The almost complete domination of the cigar and tobacco business by the Chinese (2,602 out of 2,938 employees) was not matched in any other manufacturing industry, but even in such a broad field as "clothing," which employed nearly 6,000 workers, over 26% were Chinese (Shumpsky 1956: 52).

The markets, trade, and mysteries of San Francisco's densely packed Chinatown were prominently featured in any travel guide of the times, as is the city's present-day Grant Avenue. Less well known now than then was the importance of Chinese seasonal agricultural labor in the burgeoning wheat trade. And of course the ubiquitous Chinese laundryman or houseboy was a familar stereotype.

But the tens of thousands of Chinese who immigrated to California from the days when the Central Pacific Railroad was building at its most frantic pace (1868-1869) through the end of the '70's were far too numerous a population to be confined to a few trades. At the same time, employment open to the Chinese tended to be limited because of the antagonism of white laborers. In the first great wave of Chinese immigration, during the Gold Rush, Orientals


Vegetable Gardens
Vegetable Gardens
ARMSTRONG AVE.
BANCROFT AVE.
WARE ST.
WHEAT ST.
CRANE ST.
EXETER ST.
FOLLIS ST.
CAMP ST.
KEY AVE.
LE CONTE AVE.
MEADE AVE.
NELSON AVE.
OLNEY AVE.
JAMESTOWN AVE.
SCHOOL
HARKNESS ST.
WILDE ST.
KAMPBELL ST.
AVE.
SOUTHERN PACIFIC TUNNEL
SAN FRANCISCO
MAP 7 Q
CANDLESTICK POINT AREA
HARBOR COMMISSION
1919
SUNNYDALE / YOSEMITE (SOUTHERN)
1" = 600'
N
P.S.
RESERVOIR
COUNTY LINE
HARNEY AND ALANA WAY
RICHTER AVE.
QUEBEC AVE.
PULASKI AVE.
FEST HOUSE

were quickly excluded by white miners from the mainstream of independent placer claiming and mining activity. Typically, the Chinese were to be found working the tailings or abandoned claims of their Occidental predecessors, an occupation that posed no threat to white miners who thought an ounce a day proper "wages," yet was sufficiently rewarding to bands of thrifty Chinese who could produce savings out of a tenth as much. Thus, while in the 1870's Chinese laborers were seen as a threat to white workingmen in established industries, it was also the case that the Chinese all but **created** industries that had not been seen as particularly profitable by the white population.

For instance, some market farming had gone on in few of the more favored areas of San Francisco since the 1850's, but generally speaking, farming was not an activity of much note. The availability of Chinese farm labor made it possible to raise garden crops at a profit even on the windswept San Francisco peninsula. Perhaps the best description we have seen of this phenomenon of the 1870s comes from the pen of a Polish visitor who had come to California in hopes of setting up a Utopian agricultural community:

> The whole of San Francisco is situated on arid dunes and sandy hills and yet whoever goes to the outskirts of the city will perceive on the unfinished streets, on hills, valleys, slopes, and roadsides—everywhere, small vegetable gardens encircling the city with a belt of greeness. The ant-like labor of Chinese has transformed sterile sand into the most fertile soil on earth. How they accomplished this, they alone can tell—but the fruits, vegetables, raspberries and strawberries under care of Chinese gardeners grow to fabulous sizes—strawberries as large as small pears, heads of cabbage four times the size of European heads, pumpkins the size of washtubs. . . . At every hour of the day you will observe long pigtailed gardeners now digging, now spreading manure upon the soil. . . . I have observed human excrement diluted with water. . .yet the whole of San Francisco lives on fruits and vegetables bought from the Chinese. Every morning you see loaded wagons headed to markets and stopping by private homes. In all of California this brand of industry has passed into Chinese hands. . . . Rarely ever working on their own land but on leased lands, they do not purchase land (Morley 1955: v. 34, p. 304).

Evidence of Chinese Gardens along the Sunnydale/Yosemite Route

The greenbelt of vegetable gardens tended mostly by the Chinese can be found by comparing various Coast Survey Charts of 1857 through 1884. On the northern part of the city's outskirts there were gardens from Washerwoman's Lagoon to Cow Hollow, roughly along the present-day line of Union Street. In the west,

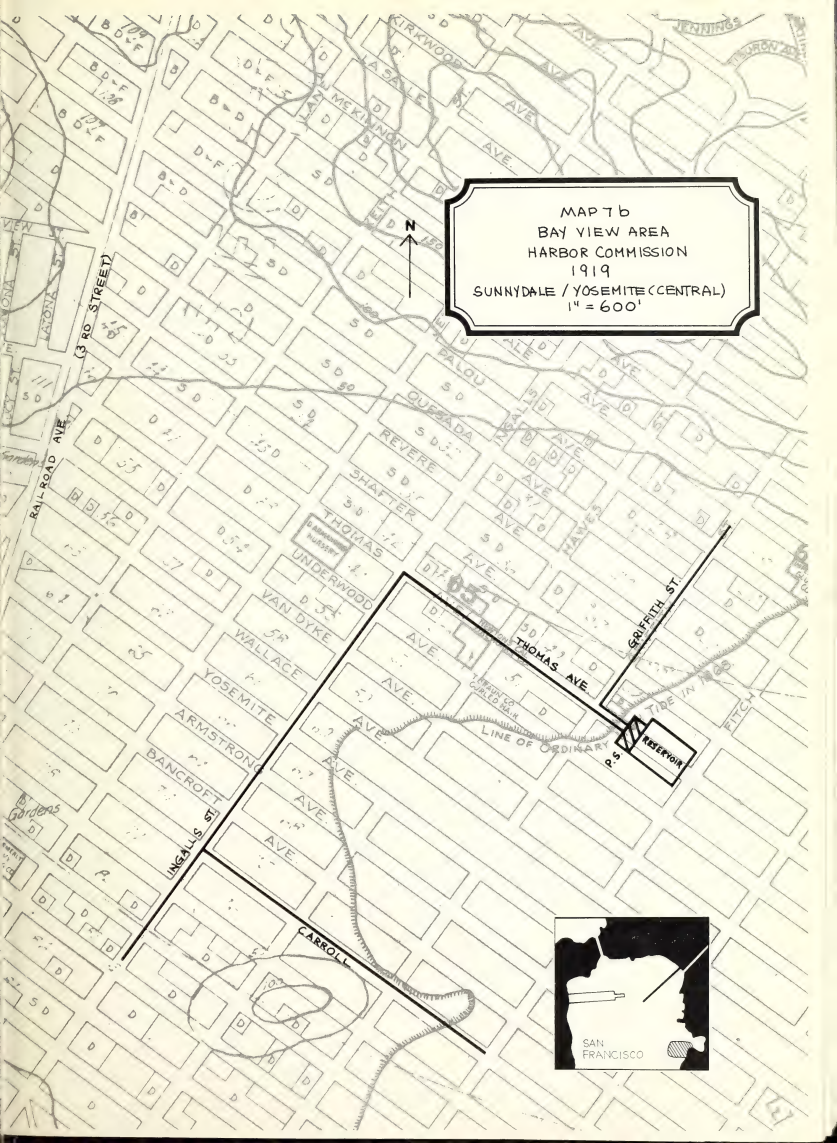
there were vegetable gardens around Lake Merced. But the greatest concentrations of small truck-garden farms lay in the southern portions of San Francisco. Here, where land was cheap and water was plentiful, either from wells operated by windmills or from natural springs, the gardens appeared on both sides of Mission Road, past the Union Race Course and the Pioneer Race Course. They were laid out on either side of Precita Creek, roughly the line of present day Army Street (Coast Survey Maps of 1857 and 1869).

Early evidence of gardens in and around the Bay View Race Track may be found in Plate 9. This sketch of the Bay View Race Track and Pavilion was made from Railroad Avenue (Third Street) looking due east toward the tidal slough. The double-fenced road (which has no modern street equivalent) led directly out to Hunter's House, where a small sailing craft can be seen on the Bay. The fenced fields are planted in furrowed rows and five windmills give evidence of water. Even the enclosure of the track was planted in garden rows.

On the 1869 Coast Survey Map one can see precisely where the Sunnydale/Yosemite route cuts through the eastern portion of the racetrack enclosure at the intersection of Ingalls and Carroll, continuing north on Ingalls, past the racetrack and some tidal sloughs. The sewer construction cuts through the knob on Thomas Street and extends out the line of the small wharf seen on Map 7b. The dewatering pump station and reservoir are sited on areas that would have been in San Francisco Bay even as late as 1919 (see Map 7b).

Not all of the gardens seen on the maps and in the views were tended by Chinese. J. S. Hittell, writing in 1882, states: "No market is supplied with larger vegetables or a greater variety than that of San Francisco. The gardeners are mostly Genoese, Portuguese, and Chinese, and their gardens are tilled with care and skill. The windmills used for irrigation are prominent objects in the suburban landscape" (Hittell 1882: 236).

The Italians and Portuguese Crowd the Chinese Gardeners Out. Hittell's comment was borne out by an 1889 feature story in the **Chronicle** entitled, "Market Gardens—Practically an Italian Monopoly." It appears from this article that the "Italian Market Trust" had gradually taken over more and more of the gardens formerly leased by the Chinese, with one difference—the Italians owned their garden plots.


MAP 7b
BAY VIEW AREA
HARBOR COMMISSION
1919
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 600'
N
KIRKWOOD
LA SALLE
MCKINNON
JENNINGS
PALOU
QUESADA
REVERE
SHAFTER
THOMAS
UNDERWOOD
VAN DYKE
WALLACE
YOSEMITE
ARMSTRONG
BANCROFT
INGALLS ST.
CARROLL
RAILROAD AVE
(3 RD STREET)
THOMAS AVE
GRIFFITH ST.
RESERVOIR
P.S.
LINE OF ORDINARY HIGH TIDE
SAN FRANCISCO

parsley—parsley was always free—four or five potatoes, a head of celery. Just everything you needed for a good soup. Then one day, I says, "Dad, you notice all the people are buying the bags of soup greens and not buying the vegetables, so we can't sell so much so cheap."

We had all Italians working for us. They made 50¢ a day and room and board. In Colma we had barracks for them to live in. Here we had some little houses. We used to get together to go over to Hunters Point and for 10¢ we would buy shrimps in a big newspaper from the Chinese and get a bottle of ketchup. Really good little shrimps. There was a lot of Japanese gardening over on Alemany. Chinese were out on Hunters Point. This place was populated by Maltese people, quite a few Japanese. They used to stop in at Dago Mary's for some wine. Mostly the Japanese kept to themselves, like a clique.

The persistence of the vegetable gardens can be seen on Map 7b. In 1919, the plots of vegetable gardens are still shown on the western side of Railroad Avenue (Third Street) with some smaller scattered gardens to the east. Sanborn Map #836 has the sewer construction overlaid as it is planned along Thomas Street, from Griffith to Ingalls. Vegetable gardens were located between Shafter and Revere—and a dairy farm was just off the marshland between Thomas and Underwood, near Griffith. We showed this map to Paul Braun, the son of the owner of the Curled Hair Mattress Factory at the corner of Hawes and Thomas, when we noticed that the 1915 Sanborn Map, at the San Francisco Water Department, showed Chinese dwelling on the factory premises.

The Chinese as Factory Workers. Paul Braun talked to us in the comfortable apartment he had converted from what had been the second floor of the old curled hair factory that dated back to 1911. The street grades had been so drastically changed that a deep basement (10 feet) had been created on what was formerly the first floor. A levee had been built along the center of the street. Mr. Braun remembered that it was for a sewer, perhaps it was there in 1915—he could not be certain.

In the interview he recalled the neighborhood as it was when he was a boy in 1915, when his father, Clarence T. Braun, moved from Oakland and bought the factory. As we showed him Sanborn Map #836 he pointed out where the Chinese workers had lived—in the structure marked "2" in the center of the block:

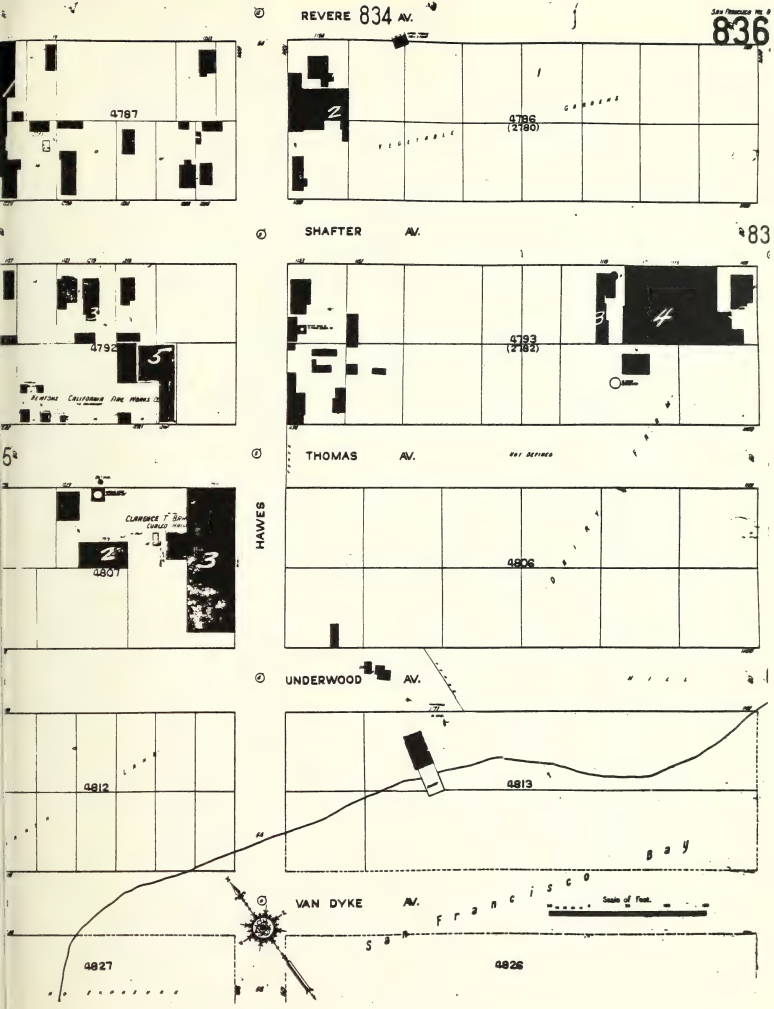


Plate 15: Sanborn Map #836 showing Clarence T. Braun's Curled Hair Mattress Factory in 1919. House-boats were moored on Underwood Avenue and Thomas Avenue was still part of a dairy farm. [San Francisco City Planning Archives]

This was an old barn here, and we had it heated with a stove on the second floor and all the Chinese slept out there and did their cooking. They went to Chinatown every Friday night to do their shopping for rice and spices and whatnot. They would go over to Third Street and take the streetcar to downtown and we didn't see them again until Sunday night. They were all men—I think mostly from about 30 to 40 years old. My father brought a few of them with him from Oakland from his father's factory and then they recruited more from Chinatown. I remember they were all named Gee. Gee Lake, Gee Young, Gee George. We had about 12 or 15. There were 40 workers, I guess, in all, but the Chinese were the only ones who lived here. We lived in that house on Thomas, next to the water tower, just across from the Newton California Fire Works.

I think they had Chinese working there. They used to make all the fireworks for San Francisco's celebrations on the Fourth of July and for the Chinese New Year, I guess. Then one day some small boys broke in—I think it was 1921—and they were playing with matches and they made the most terrible fire and explosion. It blew all the windows out. Two of the boys were killed. It was a real tragedy. I don't think they ever recovered or made fireworks there again.

The way a curled hair factory worked? Well, we bought the cows' tails and horses' tails and manes and boar bristles from the Butchertown places—Swift and Armour and Allen. We would buy the raw tails. First we would wash them, clip the hair, use it, and sell the rest back to the glue factory. There was the Imperial Glue Factory, at Oakdale and Palou—located on the water, with their own wharf.

In making curled hair for mattresses you have different grades. The best mattresses—like the one I sleep on now—is made 100% from horses' tails. But there were mixtures of softer horses' manes with cows' tails—maybe 50% each, or cows' tails with boar bristles. Lots of mixtures.

Each worker would have a big basket of hair, with a hook on top of it that turned, and a spinning frame. They would feed the hair through their hands and back up the length of the spinning frame. They would have a cattle horn and it was notched so that when they pulled the hair through it would knot all up. Then in that knotted form they would steam it, like a woman's hair—a permanent wave. Afterwards they would unravel it and take out the knots and make it all fluffy.

We sold it to make mattresses. We supplied mattresses to the state hospitals, institutions, hotels. It was very popular in those days because they made springy mattresses. And they lasted forever.

Looking back at your map there—you see what looks like little houses in Underwood? Well, those were the houseboats that belonged to some Italians. And they would go fishing—they had fishing boats for salmon, I think. At night they would drink a lot of wine and start singing. They would sing so loud you could hear them all the way up here. That was all water. At high tide the water came right up to our back door on Thomas Street.

Across the street, up near Griffith and Shafter, there was a dairy farm that belonged to the La Costas. It wasn't a commercial dairy but we would buy raw milk and cream from them. It was a very congenial sort of mixed neighborhood. We had Maltese, Italians, French, Portuguese, Japanese, Chinese, and some Irish. After World War II we had blacks.

You asked about the vegetable gardens and I do remember the Chinese raised their own greens near the factory—just so they would have them to eat—not to sell, you know. It was mostly the Italians by then that owned the gardens everywhere. The last of those gardens are up on Williams Street today—still owned by Italians, the DeMartinis, and they hire Mexicans to work for them now. (Braun, Interview, April, 1981.)

The Archaeological Potential for Chinese Artifacts from Vegetable Gardeners and Factory Workers. In the case of the Sunnydale/Yosemite sewer facilities planned along the southern section, there would appear to be little likelihood of finding archaeological deposits from the Chinese working in the vegetable gardens. The discovery of the notes made by U.S.C.S. surveyor Rodgers, following the 1882 resurvey of the shore, that the Bay View Race Track was then largely submerged and the bulkhead and dike destroyed, coupled with the information from the 1900 Coast Survey Map that the marsh was flooding the area transected by the Sunnydale/Yosemite sewer route, would appear to eliminate the possibility of artifacts remaining from the Chinese farmers in this area.

The same can be said of the Chinese workers in Braun's Curled Hair Company. Having located the place where the Chinese lived within the factory premises, we have effectively located them away from the street itself. This is not always the case—as will be seen in a later instance, near 24th Street, where Chinese were living in a settlement directly in the street from 1887 through 1919.

The Chinese as Shrimp Fishermen at Hunters Point

Shrimp fishing on San Francisco Bay was an industry created by the Chinese. California prospered by their hard work, as is shown from the census figures of

Plate 16: Chinese Shrimp Fishing Village at Point San Bruno, 1888-89...Built of scavenged lumber, the mud-flat houses were often raised to accommodate the tides, while those perched on the rocky cliffs were connected to the Bay by long, ramshackled piers that led to the sampans and junks.

Plate 17: Chinese Fishermen on San Francisco Bay, about 1888...The junks and sampans were photographed frequently on the bay but this is one of the rare views of the Chinese fishermen at work. They went to sea on the evening tide, fished all night, and spent the daylight hours drying the shrimp. [both views, National Maritime Museum at San Francisco]

1880, in which California led among the eight shrimp-producing states. As early as 1871, Chinese fishermen were using nets imported from China (Cal. Com. of Fisheries 1879-1881: 15-16).

If San Franciscans were not quick to appreciate the tiny bay shrimp or the exotic abalone, there was a cultivated appreciation in China that guaranteed a strong demand for both. If Gold Rush appetites were more attuned to oysters as the ultimate in gourmet shellfish delicacies. San Franciscans were quick to perceive that Chinese restaurants were among the best in the city that was proud of its dining-out cuisine. Chinese cooks were a part of many upper-class San Francisco households. Although abalone was much slower to catch on as a delicacy, bay shrimp quickly became a sought after, and even customary, dish. By the 1890's the following note appeared in the **San Francisco Examiner:** "Back East if a man enters a restaurant the first thing they serve him with, unasked, is a glass of ice water; and the Eastern eater, knowing no better, is grateful and seemingly glad. Out here ice water not standing in universal favor, he is handed a plate of shrimps. If the patron is an Eastern stranger, everybody knows as much in a moment for the alien is as a rule grossly ignorant of the shrimp's anatomy. He tries to peel the crustacean as he would set about peeling a potato, and the crustacean fools him every time. Then the waiter shows him how to snap its back at the second joint, pinch its tail, and deftly wiggle out its inwards. . .the bay shrimp costs 5¢ a pound. . ." (**San Francisco Examiner** July 23, 1893).

The Chinese came to San Francisco as experienced fishermen. They knew where to find the best places to establish fishing camps, and they had the skills and patience to become the only bay shrimp fishermen. Hittell remarked that the best fishing grounds for shrimp were on the western side of the Bay—north of San Rafael, near Point San Pedro, at Hunters Point, at Point San Bruno, and farther south at Point San Mateo. In 1882, when Hittell was making his observations, "there were several colonies of Chinamen, number altogether about 500 persons, on the San Mateo Shore, mainly occupied in catching and curing shrimp" (Hittell 1882: 366).

A map prepared expressly for the **Chinese Historical Society of America Syllabus,** by Roger A. Nash, shows five Chinese shrimp camps at Hunters Point in 1910 and this number increases to 12 settlements by 1930—almost all located on the northern side of Hunters Point (Chinn 1969: 39). Hittell described the shrimp camps as he knew them, south of the San Bruno Mountains. "They are

divided into little camps, numbering from 12 to 40 men, each under a manager, who selects the fishing ground, directs the work, and determines how much of each daily catch is to be sent to the city, and how much dried. It is impossible to ascertain the average earnings, but they are doubtless small. A funnel-shaped net, 30 feet long, with a mouth 18 feet wide, and meshes not more than half an inch in diameter, is set in water 20 to 25 feet deep when the tide begins to come in, and hoisted before the ebb. The average daily catch in that neighborhood is a ton and a half, for 200 fisherman, employed in 40 boats, with crews of 5 men each. The shrimps, when taken to shore, are boiled in weak brine for half an hour, when they are ready for the table" (Hittell 1882: 366).

Plate 16 shows the shrimp village at Point San Bruno in the late 1880's. The rare view of the Chinese fishermen in Plate 17 was taken at the same time. But the village that Hittell described was very different from the China Camp settlement in Marin, which is thought to have lasted from 1870 to 1910, with a mixed family population that fluctuated between 1,000 and 3,000.

The funnel-shaped nets in Hittell's description were to be the cause of still more controversy. Quoting from the **Bulletin of the United States Fish and Fisheries Commission,** with some interpolations of his own, Robert Walsh complained in 1893 that the Chinese "use fyke and bag nets, the meshes of which are so small that 'prodigious quantities of small crustacea and other small fry such as large fish of commercial importance subsist upon are daily taken from the waters around the California coast. . . . The fishing methods of the Chinese for shrimp and small fish should be restricted, not only because of their great value as articles of food and profit to mankind directly, but also for the reason that they form a very important part of the food of fishes—the supply of which has become very nearly exhausted in San Francisco Bay' " (Walsh 1893: 833).

"In the mid-1870's, pressured by Italian, Greek and Dalmation fishermen, by then the majority of the fishermen about San Francisco, a law was passed regulating the size of the mesh in shrimp and drag nets" (Chinn 1969: 38). A newspaper account of 1889, headlined "Chinese Fishermen—Their Trial for Using Illegal Nets," reports: "According to testimony from the Chinese, through their interpreter, it made no difference what the size of the mesh was in their nets

Plate 18: Winnowing dried shrimp in a Chinese settlement on San Francisco Bay, 1897...At the far left, a workman knots the shrimp filled bags for Hong Kong.

Plate 19: Shrimp drying along the main street of China Camp... What appears to be light soil on the slope of the hill above the rooftops is actually drying shrimp spread out to use solar energy. The shrimp in the foreground are still in the nets, waiting to be shifted to the hillside. [National Archives]

if they paid the inspector. They attempted to show that they were being blackmailed—sometimes the fees were $5 per boat, sometimes they paid $10. The size of the mesh of the net remained the same" (**San Francisco Chronicle**, November 17, 1889).

One of the best accounts of the methods used by the Chinese shrimp fishermen was published as a long feature in the **San Francisco Chronicle**, July 23, 1893:

> It is in the night time, just after the sunset, that the Chinamen go out to sea in their junks. It is of no consequence where their camps or villages are, nor does it matter much whether the tide be on the ebb or flow at their starting. They go to sea at night because they can do all their best sorting and cooking by day; and the junk that starts at, say 8 o'clock tonight does not return until to-morrow afternoon. The junks are craft constructed on primitive lines in some respects and advanced lines in others. They have square sterns, with queer-looking carved rudders that are hauled up above the water-line when the boats are at anchor. Then their rig is distinctly Oriental; but they sail like clippers either before or into the wind. They use centerboards, a fact that will surprise American yachtsmen; in fact, most junks use two. . .
>
> When the junks sail out in the night they go straight for the string of buoys which mark their fishing grounds. There are a score of fishing camps or villages along the adjacent coast line. . .though they are all called fishing villages, none of them catch anything but shrimp. Each village has its own grounds and its own string of buoys, and every night the same junks make sail for the same stamping grounds. When the spot is reached, the work of setting the nets begins, and these nets—funnel shaped affairs, buoyed on top and weighted at the bottom—are stretched across a waterway of from a quarter to a half mile. A big village with a dozen junks may cover a tidal way of nearly a mile with its line of seines or nets, but 400 yards is about the ordinary space covered.
>
> By the time the last nets are laid, it is nearly time to go back and empty the first ones—there is just time to have a frugal meal of fish and rice. . . . Each net has to be hauled up and emptied into the gaping cavity of the hold, where a silent Chinamen in top boots and blue overalls rakes them to an even surface and tramps them down in the bottom of the junk. Every net is well emptied. Lots of small fish, smelts, flounders, shiners, cod, ling, etc. come up with every haul, but they are slung into the hold and wiggle about with the shrimps. The same work goes on from net to net till the whole take is in, and then it is time to lay the seines once more so as to catch the returning shoals of shrimp. The shrimp run both with the ebb and flow, and though the latter as a rule brings much the better returns, the former is not to be missed.

It is in noon of the next day when the second catch is taken aboard and then sail is set again and the junks bear homeward to the village.

Miserable things those villages are. Nothing but unpainted shanties, blackened by the weather and the sun. A three plank wharf sticks out seaward from the shore and inland from the planking is a platform with a long shelf or table, upon which the bearers that pack the fish from the junks to the shore dump the shrimps. . . . They carry the shrimp in the orthodox Chinese way with a pole over the shoulder from which two baskets are hung loaded to the brim. These baskets when filled weigh over fifty pounds apiece. . .

The article goes on to explain how the shrimp are boiled in big vats until they turn pink. Those that are not packed into the city for sale are spread out on the ground to dry in the sun. Afterward they are winnowed until the shells are removed. The shells are mixed with the odd bits of miscellaneous fish and sent back to China to be used as fertilizer. At the time of this feature article in 1893, only men were living in the villages, although the writer pointed out that women had lived there at an earlier time.

Plate 18, taken in the late 1880's, shows the winnowing process in which the Chinese worker simply beats a bag full of dried shrimp again and again until the shells are separated. It was estimated that it took 15 pounds of fresh shrimp to equal one pound of dried meat. The wholesale price for shrimp in 1882 was 3 cents a pound for fresh shrimp and 5 to 8 cents for dried shrimp (Hittell 1882: 366). By 1880, estimates place the annual value of shrimp exported to China, Japan and the Hawaiian Islands to be not less than $100,000. For San Francisco Chinese fishermen this meant an export catch of 1,000,000 pounds in shrimp meat and shells (Goode 1887: 809).

Most newspaper accounts of the Chinese fishing craft used the term "junk" and, very occasionally, "sampan." The sampan was an undecked craft, about 10 feet wide and 40 feet in length, with a flat bottom. Plate 20 shows a junk rounding Telegraph Hill in the 1880's. Plate 16 shows a two-masted junk at Point San Bruno in the 1880's. A sampan shrimper is seen in Plate 21.

A random selection of data from builders' certificates (collected by the authors for a different purpose) shows several Chinese craft built in the 1890's. All are listed as "sloop rigged"—indicating a single-masted vessel. The **Ming Lee** was built in 1897 by Ah Dong, at Point San Pedro, for Andrew Anderson. The **Mong Lee** was built in 1894 by Kee Song, at San Pablo, for C. Brock.

Plate 20: Ocean-going Chinese junk rounds Telegraph Hill in the late 1880's...The ocean-going junk is distinguished from the sampan (upper left, Plate 21) by its larger size and broader beam. After the Chinese Exclusion Act boats like these were registered in Anglo names although the Chinese owned and operated the fishing fleet. [National Maritime Museum, S.F.]

These were craft of about 7-1/2 to 8 tons. At San Francisco, the **Ah Loy** was built in 1890 by Ah Chinn for James Armstrong, and the **Ah Loy #2** was built in 1898 by Ah Chee for the same James Armstrong. Both of these vessels were more than fifty feet in length. Apparently a vessel had to be registered in the name of a U.S. citizen, and the Occidental ownership of these new craft was only nominal.

Specific Location of Chinese Shrimp Fisheries at Hunters Point. The Nash Map of "Chinese Shrimp Camps on San Francisco Bay 1889 - 1930" gives us only approximate locations, with the names of the leaders of the Chinese settlements on Hunters Point. The cluster of five villages in 1910 included the Union Chinese Camp, and Fook On Lung as owner or leader of two camps. These were on the northern side of Hunters Point not far from the dry dock area. On the southern side of the point were two camps under the name of Quon Lee Chong. By 1919, the Sanborn Maps give us a more precise definition of location than the generalized map. Sanborn Map #814 shows a "Chinese Shrimp Station" just north of William Munder's Ship Building Yard, on the block bounded by Davidson on the south and Custer on the north. The eastern portion of block #4585 was still in San Francisco Bay. The Chinese at this date had some structures variously marked "shed," "kettle" and "dwellings." Some of these were located in the line of Ingalls Street itself where it met the bay.

From an archaeological viewpoint, relative to the proposed Hunters Point sewer excavation, it would appear that the Chinese were well to the north of the sewer alignment. This was certainly true in 1919. Plate 23 shows us the tip of Hunters Point by the dry dock in 1920, and what is probably a small settlement of Chinese can be seen at the end of the road on the southern side of the point. Again we are far to the east of the Hunters Point sewer excavation.

A question might be raised about the extent to which the 1919 shoreline as shown, with the boatyards and Chinese fishing settlement, is a stable shoreline. How much had the shoreline changed from the 1880's and 1890's in the specific area of the Hunters Point alignment?

A careful examination of the 600 feet to 1 inch overlays of the Coast Survey and Coast and Geodetic Survey maps from 1852 through 1900 shows that the shoreline at Davidson and Ingalls—the site of the Chinese shrimp fishing village shown on Sanborn Map 814—had not changed. Thus the possibility of

the Hunters Point section of the sewer alignment transecting archaeological remains from this Chinese fishing village would be highly unlikely.

The question remains, would the Hunters Point alignment encounter Chinese archaeological deposits further along the northern side of Hunters Point? It would appear that Hunters Point Road reaches closer to the shoreline between Fairfax and Galvez. This rocky stretch of shoreline shows no houses, wharves, or improvements of any kind on any of the maps from 1882 through 1919. Therefore it would appear that the Hunters Point sewer alignment that follows the line of Hunters Point Road would not encounter any archaeological remains from the Chinese shrimp fisheries. We do find clusters of fishing camps farther out on Hunters Point, in the area of Fairfax Street where it is crossed by Boalt, but these encampments are all located well to the east of the Hunters Point alignment—almost half a mile away.

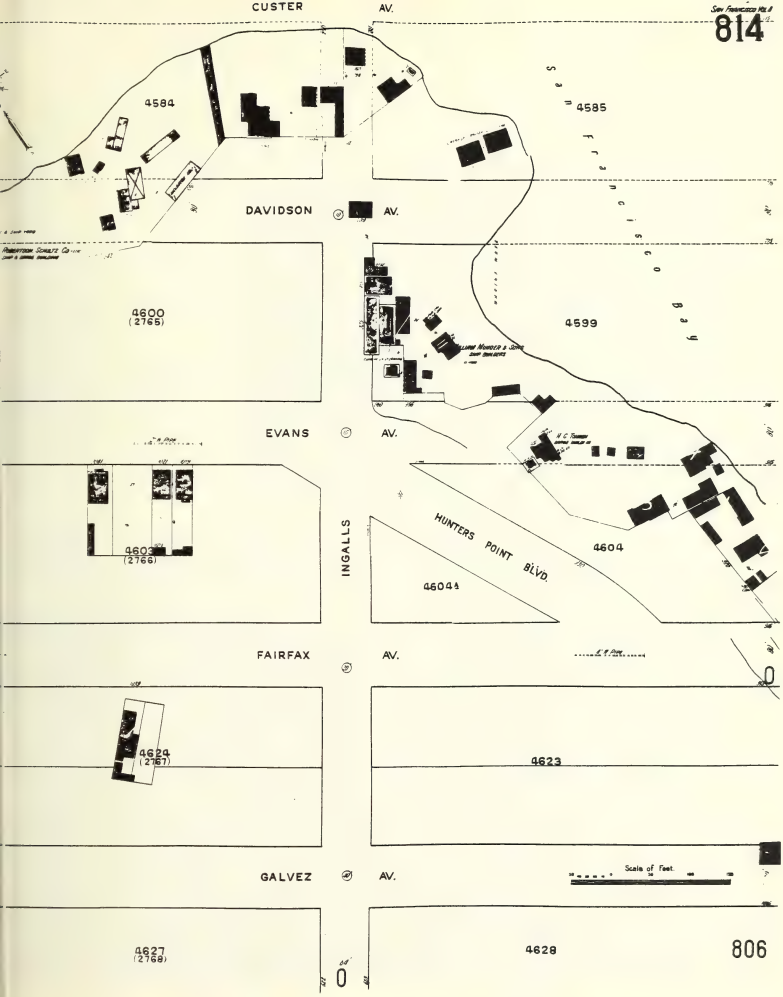


Plate 22: Chinese Fishermen & Hunters Point Boatbuilders...
In 1919 Schultz was building boats north of Davidson. The Chinese shrimp fishermen camped in Ingalls Street. William Munder was building ships just east of Evans and H.C. Thomsen constructed

Plate 23: A Chinese Fishing Settlement near Hunters Point Drydock, November 16, 1920... The photographer documented the drydock and incidentally included seven shacks that marked the site of one of the last of these small Chinese shrimp villages. [Bancroft Library]

Plate 23A: South of Hunters Point, 1920... Both of the Yosemite Pump Station sites are visible in this view. One is in the water, off the hill to the left, where the stakes are visible that mark the ship channels. The other site is in the water in the foreground. [Bancroft Library]

THE BOATYARDS ON HUNTERS POINT ROAD

With the exception of the 1852 farmhouse and yard east of the line of Hawes and between the line of Innes and the shore, the only identified historic activities along the alignment of the proposed Hunters Point sewer that might appear to have left archaeological remains of significance are the once-numerous boatyards that lined the shore through the last third of the 19th century and the first quarter of the 20th century. Although this cluster of yards did a disproportionate share of the building and repair work associated with the smaller sized bay, river, and even coastal craft—a big business in the aggregate—they were infrequently listed in the city directories; no doubt this was because they were small businesses individually, and in an out-of-the-way location, and because anyone who needed their services knew very well where they were. When Jack London wanted the **Snark** built for a cruise to the Antipodes, he knew where to go.

William Munder Comes to Hunters Point

The first boatbuilder we know to have located at Hunters Point was William Munder, who as the 22-year-old carpenter of a German ship was sufficiently determined to remain in San Francisco to go "over the side" in the middle of the night and swim from his ship's anchorage to the Alameda shore. Wishing to stay out of sight until the ship sailed, he walked south until he came to Mt. Eden, where he was hired by a carpenter who was building a scow schooner. Such work was to his taste, and in 1866 he built the scow schooner **Lorenz and William** at North Beach.

According to his son, Emil, who was interviewed by Roger Olmsted in 1952, William Munder started a yard in Butchertown immediately after building the **Lorenz and William.** Emil Munder said that there were a number of boatyards located at Butchertown at that time—1867-1870—but that they were soon driven out by the expansion of the noisesome slaughterhouses.

The scene at the early Butchertown boatyards appears in Plate 24, taken in the late 1860's. The view was made by Muybridge, and may have been taken on the occasion of his photographic excursion to the new dry dock at Hunters Point in 1868. The building in the foreground is at the southwest corner of Evans and Keith. The Hunters Point Road ran between the building and the marine railway, which extended across the intersection of present-day Evans and Keith northward into the bay. In 1882, one of the only years in which several Hunters Point shipbuilders were listed in the **City Directory,** Henry J. Ervin had a yard on Evans between Keith and Jennings. The 1869 **City Directory** lists Henry J. Ewings (sic) as a shipbuilder on the east side of Illinois near Napa Street (on the north side of the Potrero); Allardt's tidelands survey map of 1868 shows "Ervin's house" in this location. So Ervin was at the Potrero, rather than next to Butchertown on Hunters Point, when the photograph was taken. Allardt's map of the September 15, 1869, tidelands sales at Hunters Point shows this marine railway in the intersection of Keith and Evans Avenue.

The marine railway and building yard in the near background at the center of the photograph may be Munder's. There is a scow schooner up on the ways, with a sloop contributing a confusing extra mast on the other side of the schooner. A sharp-bowed schooner is being built on the beach; completed, she will be similar in appearance to the single-topmast schooner lying in the mud at the right. These single-topmast schooners are of the type that carried tanbark, firewood, and lumber from the "dog hole" ports of the Sonoma and Mendocino coasts, where they loaded their cargoes under chutes descending from the bluffs of small, rock-bound coves, somewhat protected from the steady northwest winds and seas that prevail on the California coast from May to October.

In the middle background at the right is a wharf, alongside which a "bald-headed" (no topmast) scow schooner appears to be loading—probably fertilizer. The tall gray shape in the far left background is the distillery located on Railroad Avenue between Evans and Fairfax. The other establishments in the background are probably some of the newly located slaughterhouses. If the

Plate 24: Family Outing at Hunters Point, 1868-69... Early boatyard marine railways appear in the background of the Haley O'Neill Homestead tract. Possibly this family is considering the view from their very own lot in the Haley O'Neill development. It would include an extension of Long Bridge, in the background, boatbuilding yards and marine railways, in the mud flats, and small farms and workmen's cottages of the type seen directly to their left. If it presented a barren and windswept look that was typical of the area, so did much of San Francisco before 1870. [Bancroft Library]

yard with the scow schooner on the ways is Munder's, then it would appear that he and the builder whose marine ways are in the foreground were the only boatbuilders run out by expanding Butchertown. The next boatyard site (to the right of the picture), on the eastern half of the block between Keith and Jennings, was shown as occupied by Henry J. Ervin in the 1882 **City Directory**, and continued in use through 1919 as the yard of August and Willie Schultz, finally Schultz, Robertson, Schultz Co., Inc., Ship and Barge Builders (Sanborn Map, 1919).

Hunters Point Boatbuilders

The terms "boatyard" and "boatbuilders" have been used in connection with the Hunters Point yards, though "shipbuilder" and "shipwright" will also appear. It is impossible to avoid what may appear a confusion in terminology. The building of small rowing and sailing boats and launches is a specialized craft, usually conducted in a small shop, and employing skills more akin to those of a ship joiner than a shipwright. The Hunters Point yard built and repaired larger watercraft, most typically the ubiquitous San Francisco Bay scow schooners that ranged in size from 30-40 tons up to 80 tons or more. W. F. Stone, who was at Hunters Point in the 1880's, always had a liking for yachts, and he and his son, Lester, later became the premier yacht builders of San Francisco Bay at their Oakland and Alameda yards. Stone also built some very large wooden vessels, such as the three-masted lumber schooner **Palawan**. But the stock in trade of the Hunters Point builders was commercial watercraft—vessels under 100 tons measurement, but large enough to require the services of a marine railway for periodic haul-out and repair.

A part of the scene at Hunters Point around the turn of the century is glimpsed in the plates showing "Pop" Anderson's yard on Evans, west of Griffith. Plate 25 shows a half-dozen scow schooners up for their spring bottom job, together with a little sloop yacht. Fred Siemer's yard is in the foreground, merging into Anderson's in the center. The dark, square tower of the Albion Brewery looms over the yards in the right background. Plate 26 shows Anderson and his gang posed aboard a nearly completed scow schooner; the caulking mallets are much in evidence, and launching day is not far off. The youngest apprentice in the crowd would be the one who periodically trotted across Innes Avenue to fill a large pail with Albion's brew. The first-year apprentice got only 50 cents

as a day's wages, but he could look forward after four years to getting $4 a day on new work and $5 on repair work (which was dirtier, and sometimes dangerous). By no means all of the Hunters Point caulkers and carpenters, joiners and riggers were North German or Scandinavian, but they comprised the dominant presence, as they did in the crews of the scow schooner fleet (Munder, Thomsen 1952: interviews).

Some informal portraits in Anderson's yard (Plates 27 and 28) show "Pop" Anderson in his daily wear, and the boatyard gang momentarily posed in front of the scow schooner **Alpine**. H. C. Thomsen, once owner of a nearby yard, picked out the bearded fellow, fourth from the right, as Neil McAdam, a Nova Scotia man of legendary capability with broadaxe and adze. In this snapshot, McAdam is holding a plane. Thomsen described McAdam as being addicted to strong drink and owning a collection of tools that resembled a pile of scrap metal; and further, that when he had gotten out a piece of timber with axe or adze he did not need to use the plane very much.

Location of the Boatyards

The 1882 Coast Survey manuscript map (Map 4b) shows the extensive development of Butchertown between Third Street and Keith. The boatyards in Plate 24 have disappeared from the vicinity of Keith and Evans, the first visible marine railways being east of Jennings. However, as noted above, Henry J. Ervin gave his 1882 **City Directory** location as Fifth (Evans), between J and K. This is the location of the later Schultz yard, which persisted through the date of the 1919 Harbor Commission Map at South San Francisco (Map 7c).

We cannot identify who operated the two yards (with the two pairs of marine railways) at the northeasterly bulge of the point between Jennings and Ingalls. In the little cove where the shoreline turns abruptly southward, between the lines of Ingalls and Hawes, the five ways seen on the map comprised two yards that had just gone through an unusual series of transfers. As described by Emil Munder 30 years ago, in 1880 William Munder owned the northern of these two yards, and H. J. Ervin the one adjoining to the south. Munder determined to set himself up in a sort of retirement business, and bought a sawmill in Napa, selling his boatyard to Erickson. Three months in Napa apparently satisfied William Munder's taste for early retirement, and he returned and bought Ervin's yard. Ervin then bought out Erickson—the upshot of the

Plate 25: Hunters Point Boatyards in about 1900... Fred Siemer's yard, in the foreground, merges with Pop Anderson's. Scores of scow schooners were launched from these yards, and every spring scows were hauled up on the way for scraping, painting and spring cleaning. [Author's collection]

Plate 26: "Pop" Anderson, the shipwrights and boatyard at Hunters Point, about 1900...

"During the thirty years preceding the First World War, the standard boatyard wage at Hunters Point for skilled shipwrights was four dollars a day for new construction and five dollars a day for repair work. Repair work paid more because it often required more skill, was dirtier than new work, and was sometimes dangerous. The beginning shipwright looked forward to four years of apprenticeship; during his first year he was

Plate 28 (right): "Pop" Anderson, Boatbuilder of the Potrero...Anderson ran the last of the wooden boatbuilding yards in San Francisco. His workcrew (seen above in Plate 27) gives some idea of the range and size of the craft built and repaired in a yard that operated for more than fifty years on the south shore of India Basin when Hudson Street was still part of the bay as well as the shore. The Sanborn Maps of 1905 show as many as eight shipways in operation, in Anderson's yard, at that time. [National Maritime Museum]

transactions being that Ervin and Munder had switched yards. As all of this took place in 1880, it is possible that the footloose Ervin, who had previously been at the Potrero, indeed was in 1882 in the process of setting up a new yard between Keith and Jennings.

The lack of a sloping beach south of the Munder-Ervin-Erickson yards forced the next group of yards to locate east of the bend in the Hunters Point Road, east of the line of Hawes Street.

Along 9th (Innes) Avenue another cluster of boatyards can be seen on the 1882 survey (Map 4b). In the 1882 **City Directory,** O. F. L. Farenkam was listed at 9th, between G (Griffith) and H (Hawes), which rather clearly identifies his as the westernmost of this cluster of yards (with the four ways projecting into the bay), assuming that this was a single yard, as the fence line seems to indicate. William Stone and Johnson J. Dirks were listed in the same directory at "9th Ave. nr. G." The fence lines indicate three boatyards east of Griffith. Emil Munder recalled that Anderson's yard was formerly Dirks', which suggests that Johnson Dirks may have been occupying the easternmost of the second cluster of three yards. Munder also placed Farenkamp, Goebel and Stone, in that order, east of Anderson (Dirks)—but he was referring to the late 1890's and around 1900 in identifying these locations. As we have seen, these builders moved around a bit from time to time. On the 1882 map, Stone is probably the farthest west, with perhaps Goebel in between.

We have not accounted for the pair of railways projecting from a platform at the point approximately on the line of Ingalls Street. Nichols and Weaver was one of the major scow builders of the time, and Munder's information places their yard west of the P.G. & E. plant; perhaps they occupied this site—or perhaps the first yard to the west.

Boatbuilders in 1900. The boatyards on the 1900 U.S. Coast Survey manuscript map, as indicated by the ways projecting into the bay, appear to accord well with a little notebook sketch worked up with Emil Munder in 1952. Starting at the west, where the platforms and wharves of Butchertown end at Keith Street and the more or less natural shoreline begins, we see the large yard of August and Willie Schultze, with eight ways; then, directly east of the line of Jennings, the two marine ways at Nichols and Weaver's. The odd offshore facility seen on the 1882 map is gone; the 1919 Sanborn map shows a Chinese shrimp camp occupying much of the point.

Munder and H. C. Thomsen, in that order, occupy the two yards in the cove where Evans Avenue bends southward into Hunters Point Road. A lone marine railway where the beach starts in the vicinity of Hudson and Hawes is not identified. Then come the yards of Fred Seimer, "Pop" Anderson, O. F. L. Farenkamp, Goebel, and William "Frank" Stone.

1919 and After. The 1919 Sanborn maps of the area from Keith to east of Griffith, including all of the area of the proposed Hunters Point facilities, show the boatyards much alive, but somewhat consolidated. The days were at hand when the numerous sailing cargo craft were disappearing. There was less business for the small builder of commercial cargo craft, while the fewer and often larger watercraft supported fewer small yards and marine railways.

Schultze, Robertson, and Schultze Co., Inc., Ship and Barge Builders, occupied the equivalent of a block along Evans Avenue. William Munder & Sons, Shipbuilders, occupied the portion of the block between Davidson and Evans, Ingalls and the bay. Some of the buildings of H. C. Thomsen, Barge Builder, occupied the end of Evans Avenue, together with the area north of Fairfax and east of the Hunters Point Road.

H. B. Anderson, Boat Building, included the site and facilities of the former Seimers' yard at the foot of Griffith. The Anderson and Christofani yard (as it was called in later years) is still in operation, the last of the Hunters Point boatyards. It was at this yard that the last San Francisco Bay scow schooner, the **Alma,** was restored in the 1960's to become one of the fleet of historic vessels in what is now the National Maritime Museum flotilla at the Hyde Street Pier in San Francisco. The **Alma,** together with the three-masted coastal schooner **C. A. Thayer,** the steam schooner **Wapama,** the sidewheel ferryboat **Eureka,** and the tugboat **Hercules** are all listed on the National Register.

The San Francisco Bay Scow Schooners

The scow schooners are discussed in particular in connection with the types of vessels constructed and repaired at the Hunters Point yards not only because they were characteristic of the size of craft built there, but because they were the most numerous type of sailing cargo craft produced and because they were a vessel unique among 19th century American sailing craft. Although sunken watercraft will not be encountered by the proposed Hunters Point excavations,

MAP 4b

HUNTERS POINT

U.S. COAST AND GEODETIC SURVEY MS.

1882

SUNNYDALE / YOSEMITE (NORTHERN)
AND HUNTERS POINT

1" = 600'

CUSTER

3RD ST.

EVANS

NEWHALL

FAIRFAX

HUNTER'S POINT ROAD

AVE

ST

Story Blvd

44

GRIFFITH ST.

DRY DOCK

Dry Dock

Pond

MAP 5C

HUNTERS POINT
U. S. C. AND G. S.
1900

SUNNYDALE / YOSEMITE (NORTHERN)
AND HUNTERS POINT
1" = 600'

CUSTER
3RD ST
EVANS
NEWHALL
FAIRFAX
HUNTERS POINT ROAD
RAILROAD
HUNTERS

since the entire alignment is inside the shoreline (or in one place no more than a few feet beyond the high tide line), vessels of the size range of the scow schooners could be encountered in other portions of the proposed Bayside Facilities work. Other types of 19th century craft may be of even greater potential significance than the scow schooners because the scows were recognized as a unique and disappearing breed 50 years ago, and a number of examples were measured and drawn up in some detail, unlike other craft that were less conspicuous or thought less uncommon.

Dozens of local types of commercial sailing craft developed in the United States during the 19th century. This variety of types represents, for the most part, the various attempts of local boatowners and builders to produce craft suited to particular working conditions. The development of these local types was influenced by the availability of building materials and skilled builders, by tradition and fashion. And while each local type developed the way it did for good reason, each type was not necessarily the only type that might adequately have served the purpose for which it was intended.

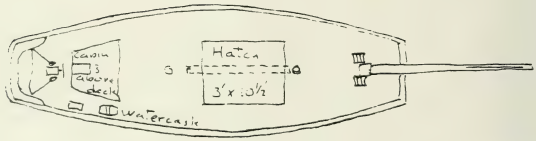
Sailing vessel types proliferated because of the almost bewildering number of compromises between one quality and another that may be called for in the case of very low powered working craft that must deliver optimum economic performance under widely different types of local physical and economic conditions. More than a few of the compromises involved in designing low powered motor vessels can be obviated by installing high powered machinery, which is why one can see many vessels in a modern fishing harbor, for instance, that do not seem to have been designed with anything very clearly in mind and that are roughly interchangeable with other mongrel breeds in distant ports.

The navigation of San Francisco Bay and its estuaries, and the Sacramento-San Joaquin rivers and delta area, called for some modest-sized sailing cargo craft in an era when the waterways were the most convenient, and sometimes the only, means of conveying bulk cargo. This navigation did not demand craft of exceptional seaworthiness, nor did the bulk carrying trade require high speed. The possibility of compromising these two qualities without adversely affecting the utility of the boat permitted the development of a scow-type sailing vessel that was cheap, strong, and burdensome and did the most work at the least cost. Because of its desirable qualities in this context, the scow became popular on San Francisco Bay.

When Captain John Leale first went to work on the Sacramento River in 1865, he found that, "Slow freight from San Francisco was shipped by schooners, at first sharp-bow vessels, later vessels of the scow type, which is square bow and stern and flat bottomed. These latter would carry more cargo on lighter draft, besides working better in close quarters" (Leale 1939: 33).

An example of the sort of scow schooner being built in San Francisco in 1865 was the **War Eagle.** Henry Hall, taking notes for a report on shipbuilding in the United States for the 1880 Census, made the following measurements and sketches (Hall 1941: 87):

length on deck	58' 3"
beam	20'
depth of hold	5' or 6'
bowsprit	18'
jibboom	32'
masts	75'
topmast	28'
fore boom	28'
fore gaff	18'
main boom	38'
main gaff	20'
register tonnage	38 tons
cargo capacity	70 tons



Here was the San Francisco Bay scow schooner in substantially its final form; differences between individual scows at any given time might be greater than any differences between the **War Eagle** and the average later scow.

While it is certain that the scow schooner was widely employed on San Francisco Bay by 1865, the origin of the type is obscure. During the early days of the Gold Rush, many of the vessels arriving in San Francisco carried on board knocked-down lighters, to be used in unloading the ship, as San Francisco then

Plate 29: A Hay Scow-The workboats that kept San Francisco's horse population moving...Mid-morning and the bay fog is starting to lift. But the wind may not come until afternoon; so the last mile to the hay-wharf is made with a "white-ash" breeze. Of the half-dozen distinct types of sailing craft operated over the hundreds of miles of navigable inland waterways, the scow schooner was probably the most important to the economic life of the area. The 19th century moved on hay, much as the 20th moves on gasoline. [Author's collection]

possessed no port facilities. Some of these vessels may have been rigged and, during the period when shallow-draft shipping was scarce, used as common carriers.

Sailing scows were built in San Francisco as early as 1850; at least two schooner-rigged scows, the **New England** and the **Niantic**, and one sloop-rigged scow, the **J. A. Sutter**, were built in that year (U.S. Custom House 1850: Ms. Bancroft Library). Many other vessels described simply as "scows" were also built at about the same time, but it is not known whether or not they carried rigs. Nor is there evidence that the **New England, Niantic**, or any other of those vessels bore any close resemblance to the later scow schooners. The scow type is by nature very easy to build, and may be subject to considerable variation in design and construction, depending upon the abilities, inclinations, and prejudices of the builders.

Whatever its origin, the scow type became very popular on San Francisco Bay during the '60's and '70's. Henry Hall briefly summarizes the characteristics of the San Francisco scows and their activities as he saw them in 1881: "A large number of scow schooners are employed in the bay and on the Sacramento river and its tributaries, in freighting brick, hay, grain bags, and produce. At the brick wharf in San Francisco nearly 30 of these little schooners can be seen almost every day, unloading. They are from 40 to 50 feet long, two masters, carrying three men to work them. Their load is generally carried on deck. They are handy and pretty smart" (**Ibid**). The remark that as many as 30 scows might be seen unloading brick may give some indication of how numerous they were; at least two hundred or more scows must have been in operation at the time, for certainly not all of the brick scows would have been unloading at the wharf at once, and the brick trade was only one of many trades.

Some of the qualities that popularized the scow type have been mentioned or implied: The scow cost less to build than the conventional schooner of equivalent cargo capacity; it carried a large load on a comparatively short overall length, and had the advantage of carrying its load almost entirely on deck, which greatly facilitated loading and unloading; its shallow draft, even when loaded, gave it a wider range of navigation than the conventional types; its simple sail plan could be easily handled by two men—even one, if necessary—and its large centerboard and rudder made it relatively quick-turning. While the scow was not an ideal vessel for ocean crossings, it was quite capable, if reasonably handled, of meeting San Francisco Bay at its worst. Scows often

ventured beyond the Golden Gate, to Drakes Bay, Bolinas, Point Reyes, and Paper Mill Creek, and some are said to have sailed to Alaska during the Klondike rush.

Although Henry Hall commented particularly upon the brick scows, and while the preserved historic scow schooner **Alma** was a sand scow, the scow schooners of San Francisco Bay were most popularly known as "hay scows." The 19th century moved on hay, much as the 20th moves on gasoline, and the hay trade was vital to the economy of urban areas, such as San Francisco (see Plate 29).

But the San Francisco scow did not acquire the nickname "hay scow" because of any appreciation of its importance to San Francisco's horse population. Rather, the highly unnautical appearance of the scow with a towering deckload of hay apparently impressed itself on the popular imagination to such an extent that the term "hay scow" seemed to best characterize the type (see Plate 29). Indeed, the scows were particularly adapted to the carriage of such bulk cargoes as hay, and some of their fittings and equipment were designed to this end. For example, the wheel was usually mounted on a small platform (called the "pulpit") that could be raised so that the helmsman could see over a high load, as in Plate 29.

Quite a number of scows engaged in the hay trade, and they seem to have had this business almost to themselves, so far as sailing competition was concerned, as the sharp-bowed schooners were not nearly as well suited to carrying such a bulky cargo. The hay wharf, on the Third Street Channel, was the focal point of the hay trade, and here a dozen or more scows could often be seen at once, tied two and three abreast, loaded five or six tiers of bales high. These hay loads were collected from as far afield as Sacramento and Milpitas and at many points on shallow creeks and sloughs in between, where the shallow draft of the scows permitted them to penetrate many areas closed to other types of water transportation.

According to Emil Munder, scow builders usually built scows on the basis of verbal contracts. Very few scows were built from drawings or models—the buyer would tell the builder what size boat he wanted, and the builder would quote a price. The builder would then build the scow the same way he always built a scow. The different builders had different ideas as to the best hull shape, and these differences were never resolved to the extent that the scows became stereotyped. The builders, when they had no contract work and when

Plate 30: The Alma rescued at a midnight high tide by Harry Dring and Roger Olmsted... An example of a National Register object before its restoration. The Alma is part of the National Park's Environmental Living History Program and sails again. In Plate 31 (top), the **Alma** as she sailed in 1891. [National Maritime Museum at San Francisco]

repair work was slack, would often build a scow on speculation to keep the yard hands busy. If the vessel were not bought immediately, it would be operated on shares with a crew until such time as it could be sold profitably.

The cost of scow schooners seems to have remained fairly constant between 1860 and 1910, and was always reasonably low. The twenty-two ton **Rock of Cashel,** for example, was worth $1000 in 1867; in 1876 she sold for the same price. The larger **War Eagle**—thirty-three tons—sold for $2800 in 1875 and $2000 a year later (Bills of Sale: S. F. Maritime Museum). In 1901, Emil Munder built the **Crockett,** a fifty-six ton scow, for $2150, although this figure was for the hull alone, and probably did not even include many of the fittings. The ninety-two ton **Matilda** was built in 1905 at a cost of $5700. As the cost of boats of comparable hull form and construction is in almost direct proportion to their tonnage, it can be seen that the increase in prices during the forty years when the scow was at the peak of its popularity was more the result of an increase in size than of inflation.

That many of the scows were well built craft and well maintained is proved by the number of years some of them lasted. The **War Eagle,** for example, was already sixteen years old when Henry Hall took her measurements in 1881, but she was still running in 1925. The **Traveler,** built in 1864, finally succumbed—to termites—in 1940. The **Hermine Blum, Gas Light, Fourth of July, Robbie Hunter,** and many others worked the bay and rivers upwards of fifty years. Not only good materials, but good workmanship, went into vessels that survived a half-century of hard use.

There was quite a flurry of scow-building in the first few years of this century, and it is generally estimated that there were about four hundred scows on the bay at this time. But just as the steam engine was driving the square-rigger from the seas, the development of the internal combustion engine threatened the dominion of sail on the inland waterways. Probably the last sailing scow built in San Francisco was the **Edith,** ordered from Emil Munder the day before the earthquake.

The Last of the Scow Schooners. Although the last sailing scow was built in 1906, the useful life of the type was significantly extended by its eventual nemesis, the internal combustion engine. The San Francisco Bay Area pioneered in the manufacture of practical and reliable marine gasoline engines. During the early years of the 20th century, the **Union,** the **Atlas,** and the **Hercules**

engines proved themselves in commercial application, and Carl Riott, who built the **Empire** and later the **Standard** in the East, was from San Francisco ("Marine Engines" 1899: 123; Graef 1902: 259). These engines were extremely heavy in comparison to later gas engines—the 20 h.p., 2-cylinder **Empire,** for example, weighed 1500 pounds—but at their slow turning speeds (400 r.p.m. in the case of the **Empire**) delivered more effective power than their ratings suggest to us today, and typically rusted out before they wore out.

The transition from sail to power took place particularly rapidly after the First World War. In 1920, powered scow schooners outnumbered sailing scows, and by 1925 only four sailing scows can be identified in the annual **List of Merchant Vessels of the United States.** With the conversion to power, the number of scows declined dramatically. The conversion was expensive, alternative transportation was available with the improvement in roads and trucks, and 30 or 40 motor scows of the early 1920's could do the work of three or four times that many sailing scows.

Thirty years ago scow schooners in various stages of decay could be found in numerous out-of-the-way spots around the bay and rivers, from the old **Fourth of July** (1861) to the big **Matilda** (1905). The **Alma,** which was then still operating as a shell dredger, has been preserved and restored. Unfortunately, she is not typical of the San Francisco Bay scow schooners, being of cross-planked bottom construction and decidedly boxy in shape. The extreme stern of the **Charles W.,** a vessel of more representative form and construction, has been salvaged and is on exhibition at the National Maritime Museum at San Francisco.

Significance of Remains. As mentioned earlier, construction plans of scow schooners are available, and as the sketch in this report shows, quite a lot is known about the type, its history, and the men and the trades of the scows. However, the origin of the type is not clear, and any remains of a vessel dating to around 1860 or before might be of great scholarly interest. Alternatively, remains of a motorized scow with the engines intact (some scow abandoned on the north bank of Islais Creek or the south shore of Potrero Point as the result of a disastrous fire, for example) could be an exhibition artifact of high public value and interest.

The considerable information known about the scow schooners is the direct result of particular interest taken in the type by the Historic American Merchant Marine Survey in the 1930's and by the San Francisco Maritime Museum in the

Land.
Structures on Industries of permanent nature
Structures such as dwellings, flats, sheds etc.
Area undesirable for industrial purposes
Tide Land
B- Business Houses, F = Flats, D- Dwellings
Block numbers shown in red - thus :. etc in sections F to I
Industries in vicinity of Islais Creek numbered in black thus

MAP 7C
HUNTERS POINT
HARBOR COMMISSION
1919
SUNNYDALE / YOSEMITE (NORTHERN)
AND HUNTERS POINT
1" = 600'

N

CALAVERAS ST
MENDOCINO ST
PLUMAS ST
FRESNO ST
INDIA ST
WATER FRONT - LINE ESTABLISHED 1877
INDIA BASIN
ARTHUR AVE
BURKE AVE
CUTTER AVE
EVANS AVE
FAIRFAX AVE
GALVEZ AVE
HUDSON AVE
INNES AVE
JERROLD AVE
KIRKWOOD AVE
LA SALLE AVE
McKINNON AVE
NEWCOMB AVE
OAKDALE AVE
PALOU AVE
QUESADA AVE
REVERE AVE
SHAFTER AVE
JENNINGS ST
TIBURON AVE
MARTINEZ AVE
HUNTERS POINT BOULEVARD
INGALLS ST
WYOMING ST
IDAHO ST
ARIZONA ST
COLORADO ST
NEVADA ST
ALASKA ST
DIA ST
HAWES ST
GRIFFITH ST
DRY DOCK BASIN
UNION IRON WKS
A. BION BREW CO
ANDERSON BOAT BLDRS
PAT W. JUDE & SON SHIP BLDRS
BAY CITY SHRIMP CO
N.E. OF ORDINARY HIGH TIDE IN 1868

early 1950's. The kind and quantity of information gained at those dates about the scow schooners cannot now be duplicated with reference to other types of bay watercraft of the same period. The loss of first-hand information sources was dramatically illustrated in the research leading to the identification of the whaler **Lydia**, encountered by the sewer construction at King Street and The Embarcadero. In the 1950's, swift identification and much detailed information about the last years of the bark could have been quickly developed through interviews. For example, the last owner of the **Lydia** as a whaler was Joseph Knowland; in the 1950's, Roger Olmsted interviewed Joseph Knowland regarding some of his maritime interests, but the **Lydia** was not mentioned. By 1978 Knowland and a score of other potential sources were no longer living.

At the same time that the loss of first-hand informants and the disappearance of intact vessel remains have taken place, both scholarly and public interest in 19th century maritime history has dramatically increased. As a result, any encounter with buried ships or watercraft in the proposed Bayside Facilities construction should be treated as potentially significant from the standpoint of National Register criteria until shown to be otherwise. The encounter with the whaler **Lydia** showed conclusively that construction personnel, inspectors, and archaeological monitors not specifically knowledgeable in maritime history are incompentent to distinguish even the remains of a vessel from those of a pier or some other wooden object. The **Lydia** was so badly damaged by construction equipment before experts were called upon that what must (to an informed eye) have been immediately identifiable as an old sailing vessel when first encountered was reduced to what could only be recognized (again by an informed eye) as **some** kind of hull.

Impact on and Significance of Maritime Cultural Resources

The excavation for the proposed Hunters Point Facilities transects the location of at least three of the 19th century Hunters Point boatyard locations. The first of these is the yard shown in Plate 24, at Keith and Evans. The ways in the foreground of the photograph lay on the west side of Keith Street, about 10 feet west of the western property line of the street, as seen on the "Map: Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco" prepared by George F. Allardt for the Board of Tide Land Commissioners in January, 1869. The ways

shown on this map ran completely across Evans Avenue in a north-south direction. As suggested by the photograph, additional marine building ways or yard installations and shipyard activities may well have been east of the ways. In any event, it is almost certain the repair or building activity took place in the line of Keith Street, and on the property immediately east of Keith Street, in the line of Evans Avenue, in the late 1860's and early 1870's. At the time, the present line of Evans Avenue in this location was at or below high tide at the intersection of Keith, and for a distance of at least 50 feet eastward.

The two other shipyard sites that the proposed Hunters Point excavation will encounter are those of H. C. Thomsen, on the north side of Hunters Point Boulevard, between the line of Fairfax and Evans avenues, and a small yard with its marine ways occupying the line of Hudson Avenue, about 200 feet east of Hawes, seen on the 1900 survey (Map 5c). This latter site is associated with the location of the 1852 farmstead discussed elsewhere. In both of these cases, the sewer alignment passes through the "backyard," as it were, of the ship or boatyards, not the areas of the ways. Thus, instead of associated materials casually discarded, which one might expect at the Keith and Evans site, the archaeological potential would here include sites of deliberate junk or trash disposal.

The conclusion to be drawn is that artifacts associated with this early Hunters Point boatyard activity are almost certainly present, and that artifacts associated with boat and shipyard activity will be encountered in the proposed sewer excavation. For example, one might expect to find lost or discarded marine fastenings. In the case of the whaler **Lydia**, encountered in King Street, the particular type of treenail fastenings found furnished information of considerable interest to maritime historians. Were any treenails of this similar pattern to be found in the mud at the eastern side of the intersection of Keith and Evans, and were it apparent from their condition that they were discards from new construction of the 1860's and 1870's, the find would add important information to our knowledge of West Coast vessel construction. There are no preserved examples of West Coast-built schooners of the period, and we know next to nothing of the construction details of these vessels that would be helpful in determining the origins of types of watercraft. The foregoing serves as an example of only one type of one class of the many sorts of materials that might be found in a boat or shipyard excavation that individually might seem of little

interest at first glance, yet may be of substantial importance to the slowly growing data base of the history of West Coast shipbuilding.

Sites of wooden shipyards that have been excavated recently in San Francisco include Boole & Beaton's shipyard, which was very active in the construction of early steam schooners in the mid-1880's, on the site of the Channel Pump Station and the unidentified shipyard dating from the early 1850's encountered by Wirth Associates Test Trench #2, in the line of King Street, between Third and Fourth streets (Wirth 1979: 17ff.).

Although no archaeological testing or monitoring was associated with the Channel Pump Station excavation of Boole & Beaton's shipyard site, Roger Olmsted, a maritime historian, unofficially inspected the operation in the area where structures or debris from the shipyard might be predicted to occur. During this 90-minute visit, artifacts encountered included what appeared (from its location on the 1887 Sanborn Map) to be the remnants of the bandsaw platform, intact bottles from the period of shipyard activity (prized by the construction workers), and an undetermined quantity of scattered materials that could not effectively be examined or recovered because of the earth moving operation underway. The purpose of the informal inspection was to see what the subsurface ground conditions looked like directly adjacent to the upcoming Berry Street sewer excavation for which Olmsted was conducting an intensive historical archival study. The impression gained of the archaeological potential of the shipyard site was not verified by any followup observations, nor did the observer have any official authority to slow down construction on a sewer contract area for which no historical archival investigation had been required in the E.I.R. process, nor was any cultural resource program in effect at the time. Indeed it was not until the Berry Street (C-1) sewer contract, beginning in early 1977, that the first thorough archival investigation and recommendations for archaeological field testing was undertaken by the Clean Water Program.

In the case of the Wirth test trench for P.G. & E., what proved to be a foundation platform for a capstan used in hauling up vessels on a marine railway was encountered in the line of King Street. This discovery was inspected by Olmsted, as an expert maritime consultant, who furnished photographs of the Hunters Point and Potrero shipyard operations dating ca. 1870 that assisted Wirth Associates in identifying the nature of the structure. In the test trench, Wirth Associates recovered 20 other artifacts, mostly fragments of rusted iron, none

of which they were able to relate to the use of the capstan or the shipyard operation (Wirth 1979: 21). The test trench was approximately 20 feet long, 3 feet wide, and 8 feet deep.

Wirth Associates' assessment of the significance of the find was not high, a rating we would agree with relative to the capstan itself, the paucity of associated artifacts, and the fact that the proposed P.G. & E. excavation was not scheduled to be as deep as the test unit, nor oriented in a fashion that might transect any substantial portion of the probable shipyard site. Given these conditions, there was no followup archival study beyond the initial identification of the capstan that might have established any specific framework of significance for the shipyard or the type of activity being conducted there during the 1850's and early 1860's.

Wirth Associates stated, "It should be pointed out, however, that there is extensive photo-documentation of San Francisco's 1850's-60's shipyards in general in the archives of the San Francisco National Maritime Museum, Bancroft Library and other institutions" (**Ibid.** 23). In fact, while there are quite a number of photographs, particularly from the very late 1860's, the photo documentation record is extremely incomplete, and as often tantalizing as revealing. For example, to date not a single photograph has turned up showing the famous steamboat builder John North's yard at the Potrero, much less his earlier yard at Steamboat Point—perhaps the very yard that employed the Wirth capstan. Somewhere on this mudflat east of Third Street, North built the magnificent side-wheel steamboat **Chrysopolis**, a vessel to rival the floating palaces of the Hudson and Mississippi. We have no idea what kind of yard or setting was involved in such construction activities in any detail. The archaeological record would not be likely in itself to develop a satisfying record of John North's activities, but archaeological remains coupled with intensive maritime historical research would in all probability qualify North's shipyard site for the National Register of Historic Places and develop important information about this famous shipbuilder and his work.

It is important to note that Wirth Associates, while pointing out that no West Coast shipyard had yet been excavated under archaeological control, were obviously influenced in their judgment of the significance of the King Street site by the fact that similar archaeological sites "can be expected to occur with

Plate 31A: Hunters Point from the air in the late 1920's...
This view confirms the presence of a hulk of a ship submerged almost on the line of pilings being driven by the pile driver in the upper right part of this view. Both the log booms and the hulk are confirmed by notes on a Coast and Geodetic Survey. They would appear to be west of sewer construction.
[California Historical Society]

Plate 32: Southern Pacific Trestle across Islais Creek, 1931...
The Rosenberg Rice Company (far left) was at Custer and Rankin. The small watercraft clustered at the head of the creek are motorized scows and small launches. The 30's brought about an end to the commercial use of these craft. [Engineering Achives]

some frequency, due to the widespread occurrence of urban filling along waterfronts" (**Ibid.**: 23).

The probable "frequency" suggested by Wirth Associates is strikingly realized in the case of the proposed Bayside Facilities project. No fewer than **six** 19th century yards with marine railways (not including the huge Union Iron Works) have been specifically located on historical maps as subject to impact by the project excavations. Three of these shipyards at Hunters Point have been identified above. The other three are on the old shoreline of Potrero Point, in the area of the Northern Bayside and Crosstown facilities: Illinois Street between 18th and 19th streets, Illinois Street at 20th Street, and 26th Street at Iowa Street. In addition, Owen's yard was adjacent to the proposed 20th Street excavation of the Mariposa facilities, and Seimer's yard (later part of Anderson's) may have extended west or south from the shoreline enough to be encountered by the Hunters Point alignment, though such is not likely.

The Potentiality for Sunken Hulks on the Sunnydale/Yosemite & Hunters Point Routes. Notes from the Coast and Geodetic Survey Party by Harry T. Kelsh Jr., entitled "Detailed Description of the Shoreline" and submitted in 1917 to accompany some resurvey work of the south San Francisco shoreline, contained the following note:

> Point Avisadero, the outer end of Hunters Point, is now being changed somewhat. A larger dry dock is in the process of construction, and the piers will be changed to conform with this. The excavation is practically completed so the dock should be finished very soon. The intended changes have been indicated on the topographic sheet.
>
> On the north side of the point there is quite an area of log booms, and just to the east of them there is an old hull. The water here is very shallow, so that its position is unimportant. The shoreline here was apparently unchanged, but was rerun so that no change should be overlooked.

The location of this hulk is confirmed on a Coast & Geodetic Survey manuscript update of the area and in an aerial photograph taken in the early 1920's. The site of the hulk is well to the west of the Griffith Street termination of the proposed Hunters Point project (see Plate 31A).

A pair of hulks near the 2A-1 alignment on Harney Way appear on the 1915 U.S. Geological Survey sheet of the area. These are probably the old "priate ships" that A. Brusco spoke of swimming out to in his childhood (Interview

April 26, 1981). These hulks lay well offshore from the proposed sewer alignment.

Mention is made of these hulks because while they lay offshore from segments of the proposed alignments that are on or immediately adjacent to the natural shoreline, they serve as clear evidence of large abandoned hulks in the mudflats of the Sunnydale/Yosemite and Hunters Point facilities area. The one segment of these facilities that transects what was a similar offshore mudflat area where watercraft may have been abandoned is the Custer Avenue segment of the proposed Sunnydale/Yosemite sewer. We have no specific evidence of any abandoned vessels in this place. However, the hulks referred to above were good-sized ships; smaller vessels, such as two-masted schooners, would have been features of less note, and in the area of Custer Avenue might not have been noted as obstructions to navigation.

The Custer Avenue segment of the proposed facilities, then, must be considered a possible, if not very probable, area where a 19th century sunken vessel of importance to historians could be encountered.

CHANGES OF THE LAST SIXTY YEARS

The northern portion of the Sunnydale/Yosemite facilities lies just south of Islais Creek. Map 7c was issued in 1919 in order to show the "Industries in the Vicinity of Islais Creek." The sewer overlay for the Sunnydale/Yosemite facilities starts on Fairfax Avenue, between Lane and Mendell, and proceeds northwest through a portion of San Francisco's 1919 Butchertown. To the north lay Bayle LaCoste Tripe Works and the California Fertilizer Works, to the south, the South San Francisco Packing Company. The alignment proceeds north on Newhall Street between the yards of the Roth Blum Packing Company Works. The excavation is proposed to go northwest on Evans, past sheep pens and mudflats to the Miller & Lux slaughterhouse yards. Thence follows the line of Railroad Avenue (Third Street) where the big stockyards of Miller & Lux were built out over the mudflats almost to the line of the southern edge of the Islais Channel. The sewer alignment turns west on Custer Avenue, out past the line of Quint Street.

As can be seen on the 1919 Map, the south side of Islais Creek had been bulkheaded from the line of Georgia Street towards the Bay to Selby Street towards the head of the Channel. To the casual observer the street lines drawn into the Tide Lands create the illusion that the street grid equates with dry land. But the irregular line of the piers and "wharves" of Butchertown gives a much more realistic picture of the line of the South San Francisco waterfront in 1919.

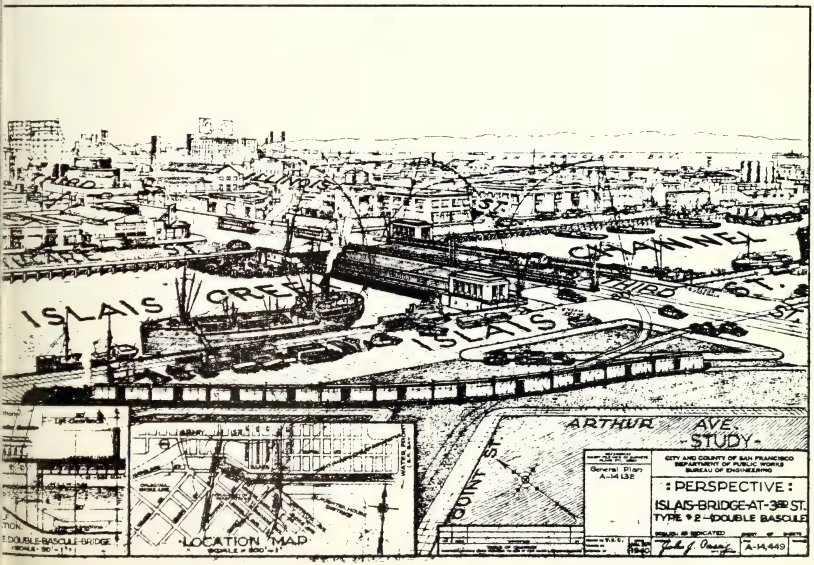
San Francisco's Butchertown had been moved to this location in 1871 from its old location at Ninth and Brannan. Essential to slaughterhouse operations was the scouring action of the tides that would sweep away the refuse from

the operation out of the sight and smell of San Francisco residents. The Butcher's Reservation was defined in a city ordinance (Mun. Rep. 1870-71: 508) and the Municipal Health Report of the same year observed that this move was being accomplished with speed and would relieve the health department's concern over the pollution of water supplies from the slaughterhouse waste. Butchertown has been described in some detail, both visually and in oral histories, in the report on the Southeast Treatment Plant, **Rincon de Las Salinas y Potrero viejo** (Olmsted, 1981).

In the case of the southeast treatment plant construction, it was the concern of the historians and archaeologists that the very late filling of the area, as demonstrated by maps dating from 1884 to 1929, indicated a long prior period of deposition of cultural materials alongside the wharves and beneath the packing houses and tanneries. As the Southeast Treatment Plant contractor was in fact digging up whole blocks of the area, including the sites of the Legallet and the Patrick tanneries, it was possible to monitor the operation for identification and recovery of any such materials. Given the length of time that cultural materials might have been deposited, astonishingly scant remains were identified. The most significant archaeological finding, indeed, was that a tannery site in such a location is not apt to be associated with the existence of significant or revealing artifacts. The scouring actions of the tide that the butchers had counted on to carry away the offal was indeed effective.

The whole Butchertown complex of industries based on the slaughterhouses, tanneries, glue-works, fertilizer plants, soap and tallow works, and the like, shows in itself the intensively exploitive nature of the butchering business. It was not only in Chicago that everything but the squeal was used. As Mr. Braun of the Curled Hair Factory recounted, when they were through with the horses' and cows' tails purchased from the butchers, they sold the remains to the glue works (Interview April 26, 1981). Even scraps of bone were salable items to the fertilizer works, for example. Therefore, it is possible to predict, based on the authors' experience with the Southeast Treatment Plant, that the Sunnydale/Yosemite proposed excavations in the Butchertown area are not likely to encounter cultural remains of any significance related to the butchering industry itself.

Plates 33 and 34: The Bascule Bridge at Islais Creek opens its full extension...The engineering perspective, drawn in 1940, planned to double the bascule bridge built in 1915.
[San Francisco Engineering Archives]



Railroads, Bridges, and Reclamation Reach Islais Creek

When San Francisco was finally connected by rail with San Jose in 1868, the line wormed its way out of San Francisco to the flatlands of the Peninsula south of San Bruno Mountain by means of a circuitous route generally following the San Jose Road, passing between Bernal Heights and Diamond Heights, turning southwest along the upper watershed of Islais Creek, and curving around the western end of Mt. San Bruno. As early as 1875, two somewhat more than up-to-date birdseye views of the city showed a Bayshore Cutoff, running parallel to Long Bridge and the Bay View and Potrero horsecar bridge, through a tunnel under Hunters Point, south across the marshes of the Bay View District, across the cove at Visitacion Valley on another trestle, and finally traveling through San Bruno Mountain at this point, where it dropped into the bay. This direct route to speed commuters to the Peninsula was built over thirty years later and with its several tunnels and lengthy trestles was thought quite the marvel of the age when it opened for business in 1908.

The Southern Pacific Bayshore Cutoff, when finally finished, included a 4,110 foot long bridge that crossed Islais Channel just north of Custer Street between Islais and Tulare streets. Plate 32, taken in 1931 from Third Street, looks west to the Southern Pacific trestle. The Rosenberg Rice Mill can be found on the 1919 Map of Islais Industries at Rankin and Custer. Alongside the Rice Mill are motorized scow schooners and a large launch. All of these vessels were near the end of their active lives as workboats and it is entirely possible that one or more vessels of this type may be buried in the fill transected by the Islais Creek facilities, as will be discussed in a succeeding chapter.

The new Islais Creek bridge crossed the channel where Third Street became Railroad Avenue. Built in 1915, it was a bascule bridge that operated on the principal that the rising floor is counter-balanced by a large weight. Plate 33 shows the impressive bridge at its highest extension, while street cars, trucks, touring sedans, and horse-drawn drays line up on the northern side of the creek, waiting to cross. Although the passing boat is out of the picture, in all probability it was a scow schooner. These flat-bottomed sailing craft carried the bricks, cement, hay, and lumber between the ports around the bay. Scow schooners operated as inexpensive interurban water transport for bulky cargoes. Motorized scows, as seen in Plate 32 were still operating on the bay in the 1930's.

The unsubstantial appearance of the bulkhead on the southern side of Islais Creek is clearly shown in Plate 33. Rocky fill was apparently held in place by pilings. On the opposite side of the channel the fill appeared to be more dirt than rocks but with no evidence, at this date, of any bulkhead.

Reclamation of land around Islais Creek was very slow in coming. The Tidelands Reclamation Act was passed by the state legislature in 1925, as California Senate Bill 196. At this time, when reclamation officially began, San Francisco businessmen held out some hopes for the industrial potential that the civic improvement would bring:

> . . . That more than 200 acres of land that has bisected the industrial section will be reclaimed. This area has been an eyesore for years. It has prevented the development not only of the territory within the district itself but that surrounding it. . . . The reclamation of Islais Creek is but the beginning of the utilization of the land and facilities that are available to industry and commerce lying between the Potrero and Bay View District. . . (**San Francisco Business** 1925: 5-7).

By 1931, Plate 32 shows the filling operation of Islais Creek that was part of the reclamation improvement. The fill on the right hand section of the view was mud dredged from Islais Creek and rock quarried from nearby hills. "During the construction of Bayshore Boulevard, clay, serpentine, and natural adobe obtained from road cuts (including 181,452 cubic yards from one cut) was dumped at Islais Creek" (**Western Construction News** 1928). "The reclamation of Islais Creek (280 acres) was officially completed in 1936" (California Assembly, 1951), but in 1942 Sharpsteen noted that "few streets had been constructed and few improvements made in the district" (Sharpsteen 1942: 116).

Islais Creek and Hunter's Point: 1940 Anticipates 1980

The planner's image, as interpreted by the engineer's clean drawing, forecasts a city beautiful for Islais Creek in 1940, as seen in Plate 34. Here the bascule bridge of 1915 has been replaced with another, wider and more modern drawbridge designed to accommodate all of the ships and watercraft the engineer envisioned using the rejuvenated Islais Creek Channel. The optimism of the 1940's is reflected in the scene of busy railroads and varied maritime shipping. To the north the manufacturing heart of the Potrero appears prosperous, productive, and non-polluting.

Plates 35 and 36: The Flooding of Islais Creek in 1916...The recurring floods resulted in the ambitious plan to reclaim the Islais Creek District by 1922. The extensiveness of the plan and the low level of development may be seen from this air view, below. Actual reclamation work was still in progress in the 1930's.
[San Francisco Engineering Archives]

But as of 1981 the railway and watercraft technology of 1940, as drawn by San Francisco's City Engineering Department, never materialized. The freeway and truck and container industries are the technologies that mark the growth of the area. Manufacturing in the Islais Creek and Hunters Point area is generally characterized by old factories, sometimes abandoned, that may yet be restored as office buildings or as mixed light manufacturing and office complexes. Again, because the Bay View land has been cheap, industries (with some few exceptions) tend to be storage warehouses and repair and maintenance yards for trucks and construction equipment.

Old-Time Bay View: A Different Perspective from the '40's. Those old-timers who were familiar with the Bay View District in the 1940's did not have a particularly optimistic view of the present or the future. Robert O'Brien, a columnist for the **San Francisco Chronicle,** interviewed Fred Zimmerman, the historian for the South San Francisco Parlor of the Native Sons of the Golden West. Zimmerman had a 40-year career of serving summonses in the Bay View and Hunters Point districts, an occupation that got him in and about the neighborhood a good deal. It was the day before Thanksgiving in 1946 when he was serving a writ on "an old party" who lived in a "private old people's home." As he put it, "For those old parties that live there, they charge $100 a week. It's pretty expensive, all right, but none of them runs up much of a bill. In that place, they don't live long enough. . . ." The interview continued as they drove down Third Street:

> It was a dreary day and a heavy drizzle was falling over the Bay View district. The windshield wipers clicked back and forth. Third Street was crowded with traffic, and slippery. Pedestrians hugged the store fronts trying to keep their clothes dry. The side streets were deserted, and the bungalows, all alike, were wet, drab and cheerless. It was a scene the boys and girls who write about how glamorous San Francisco is would just as soon skip. In fact, they do.
>
> There, at Third and Yosemite, was DeVicenzi's 4-Mile House, right where Fred Zimmerman, the historian of South San Francisco Parlor, Native Sons of the Golden West, had said the Florentine 4-Mile House used to be.
>
> "Four miles from what?" I asked Billy.
>
> "From the City Hall," he said. "In the '80s and '90s, this used to be the main line to San Jose, this and the old Mission road, which is now Mission Street. See?"—his gesture indicated the Bay View playground and all the area between the 4-Mile House and the hill to the south above Candlestick Point—"All that used

to be the Bay View race track. Like Fred said, it was the fastest track in the world, because the ground under it was so marshy and springy."

He could not remember any of the great horses that ran there. Although he is a spry 70, the Bay View race track was before his time.

We drove back down Third to Evans avenue, and out Evans toward Hunters Point. I asked him if he had ever worked in the slaughter houses. He chuckled. "Sure," he said. "Every Saturday morning when I was a kid, a gang of us used to go over the dumps from the Potrero and teach the consumptives how to drink hot blood. The doctors would send them down there after it, and they'd be afraid to catch it in their tin cups, when it came out of the throat of the steer that had just been slaughtered. So we would take their cups and catch the blood and then take it over to them. Fifteen cents a cup, they gave us."

Billy said he and his friends would each pick up a dollar or so every Saturday morning that way, and then blow it on a good time at Morosco's theater. Sometimes, for being accommodating to its consumptive patrons, the slaughter house would give the lads a potato sack of "aw-full" to take home—liver and lights, hearts, lambs' heads and other organic meats.

"What the hell," Billy said, "In them days, if they didn't give the aw-full away, they'd spill it in the bosh."

"They'd what?"

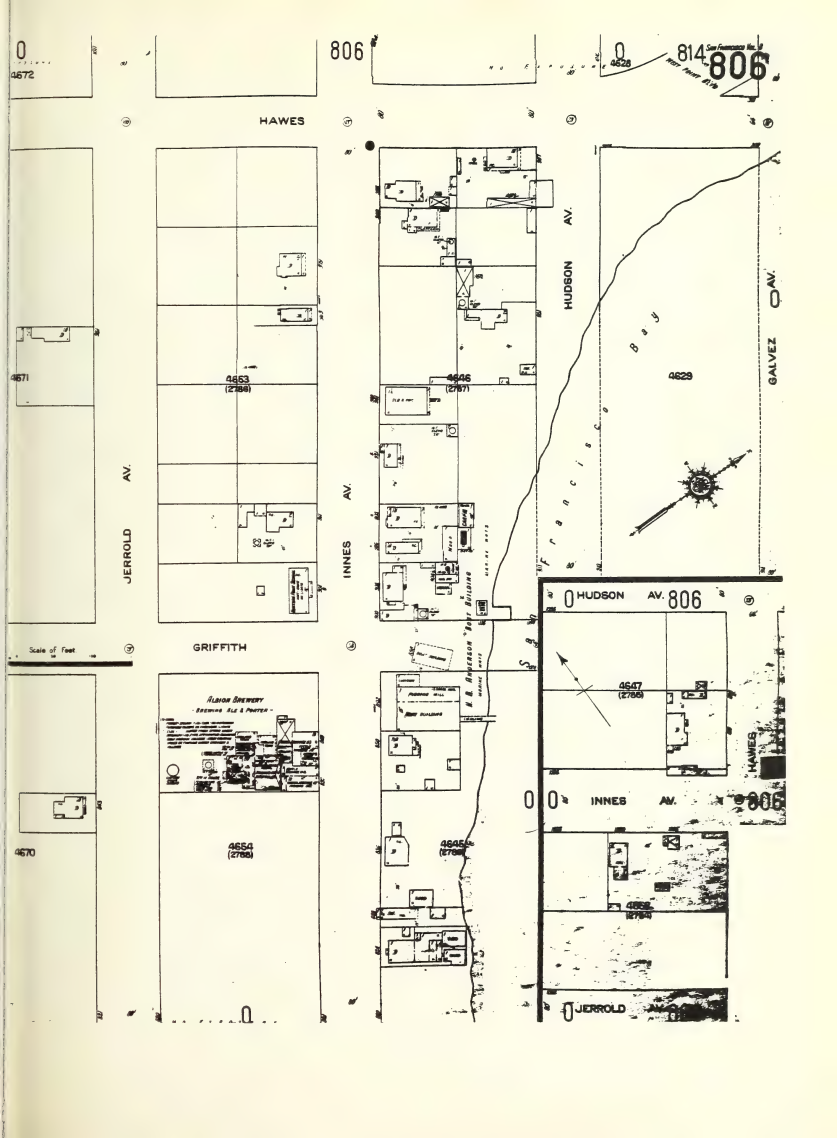
"Spill it in the bosh—sweep it through the trapdoor into the water. Them slaughter houses used to give away a million dollars in aw-full, according to today's prices. Now they save it all, and sell it."

There was a turn in the road, and after we'd made it, he pointed up to the right. "There it is, what's left of the Burnell Brothers' ale and porter house." Above the road, on the side of the hill near the Harbor Slope housing project, stood a square, brownstone building with a weathervane surmounting its peaked roof. Between it and the road were the ruins of stone walls.

"It used to come clear down to the road," Billy explained. "They made the ale out of spring water. They looked all over the city for the best spring water. The found it here, and here is where they built their brewery. It was one of the landmarks of the old Butchertown, but it don't look like much now." He noticed curtains at the windows. "Guess someone's even living it it," he added sadly. (**San Francisco Chronicle,** Nov. 25, 1946)

The Albion Brewery stands today near Griffith and Innes as a National Register Landmark dating back to 1870, when it was founded by Dr. Burnell. Today "Mountain Spring Water" is bottled from the historic spring. A sculptor had converted the building into a studio and the masonry tower is still occupied. Plate 7 shows the square tower in the eucalyptus trees, directly across Innes Avenue from Anderson and Cristofani's Boatyard seen in Plate 37. The large

ates 37, 38, and 39: Anderson and Christofan's Boatyard, 1980...
e Hunters Point School (1900) is no more but the farmhouse
om the 1880's (upper left) still stands opposite the boat-
rd. [California Historical Society and Jack Prichett views]


806
814
806
HAWES
4672
4671
4653
(2788)
4646
(2767)
4629
HUDSON AV.
GALVEZ AV.
JERROLD AV.
INNES AV.
San Francisco Bay
Scale of Feet
GRIFFITH
4670
4654
(2788)
4655
(2788)
HUDSON AV. 806
4647
(2768)
HAWES
INNES AV. 806
4656
(2768)
JERROLD

naval craft on the marine ways appears to be a floating warehouse and repair shop. The small red cottage with its white gingerbread trim is of a style that dates from the 1870's or '80's, but a check of the 1882 Coast & Geodetic Survey Map does not place it, at that time, on the corner of Griffith and Innes. A larger house appeared on the 1882 chart, farther to the left and set back of the sole surviving large eucalyptus tree.

Across the street is the site of Hunters Point School, which was built on leased land in about 1900. Plate 38 shows the school some time after 1905. The tower of the Albion Brewery can be seen in the background to the left, with the brewery wagon hitched up and ready for loading. The stand of eucalyptus trees in the right of this older view still can be found today next to a large farmhouse that dates back to the early 1880's. Plate 39 shows the site of the Hunters Point School and the early house as it stood in 1890.

The Bay View and Hunters Point district has a number of houses that have survived from the farming era of the 1870's and '80's. Plate 40 shows an extant farmhouse from the days of the homestead enthusiasm at the corner of Egbert and Ingalls, directly adjacent to the proposed sewer excavation. This little four-room house, with its false raised front and ornamental turned-spool decorations, is an excellent example of the workingman's homestead that has survived for a hundred years. As such, it would be eligible for the National Register of Historic Places.

World War II drew a new ethnic group to Hunters Point. The Hunters Point Naval Shipyard brought a demand for workers and another demand for workers' housing. For the first time black people moved into the area that had been a loose mixture that included Italians, Germans, Irish, Maltese, Portuguese and Chinese. Plate 41 shows the World War II Hunters Point housing in the process of building. It was meant to be temporary housing, but like so many wartime projects it lasted longer than the jobs it was built to accommodate. With no work at hand, Hunters Point housing became a black welfare community sealed off by the controlled access freeways from San Francisco. Today some of this housing has been demolished, and some is deserted. A redevelopment project is building new apartments and houses. The area is still largely a black neighborhood but is becoming more integrated as the level of housing is improved. The demand for new, housing is so great in 1981 that Hunters Point housing is sold by lottery drawings.

More typical of the housing in the Bay View and Hunters Point area today are the row houses seen in the background of Plate 42. The authors took this view of the last vegetable gardens in the Bay View area. The gardens, still actively cultivated for commercial purposes, are on either side of Williams Street, just to the west of the Southern Pacific Railroad tunnel and tracks. The dirt road to the right on Plate 42 roughly defines Diana Street. Across Williams Street, between Newhall and Mendell streets, farm workers are weeding the southern part of the garden. The tracks of the Southern Pacific cut through the line of Yosemite Street, which marked the location of the pavilion of Bay View Park.

Plate 42: Row Houses and Vegetable Gardens in the Bay View, 1981... The last of the great commercial gardens of a century before, on Williams Street, just west of the Southern Pacific tracks. [Author's collection]

Plate 43: South San Francisco's last commercial garden from the 1800's in the Bay View... Mexican farm workers plant a truck garden where the Chinese once raised produce.

ate 44: A time and a place...Minor White documented
ristmas, 1949, in the Potrero. One of San Francisco's most
mous photographers took this view that has everything to
plain the changes in the area but the people. This pocket
the past has a gas tank in the front and a dump in the back.
alifornia Historical Society]

ARCHAEOLOGICAL RECOMMENDATIONS: SUNNYDALE/YOSEMITE TRANSPORT/STORAGE & HUNTERS POINT FACILITIES, by David A. Fredrickson

Mitigation procedures described in the following section are the recommendation of the consulting archaeologist. The procedures that will actually be employed are subject to approval by the State Water Resources Control Board, the Environmental Protection Agency, and the Advisory Council on Historic Preservation. Because of current uncertainties about funding, the final decision about mitigation will not be resolved until funds are available for design and construction of the proposed facilities.

A preliminary archival and literature study of the Bayside facilities for San Francisco's Clean Water Program, completed in August 1980, found that the Sunnydale/Yosemite route passed through a region of high sensitivity with respect to prehistoric resources. It was concluded that there was a high probability for impact on one or more of the prehistoric sites reported by Nelson in 1909, and it was also recognized that impacts to other, as yet unidentified prehistoric sites was also possible. In November 1980, subsequent to the archival search, a research design was completed with the aim of locating prehistoric sites reported by Nelson that were likely to be within the Sunnydale/Yosemite routes. Coincidentally, in January 1981, field work including an auger boring program identified prehistoric archaeological remains at the intersection of Harney and Alana ways within a segment of a drainage outfall proposed by a private corporation. Evidence was that the Sunnydale/Yosemite route would also impact the prehistoric site represented by the remains. In April of 1981, a testing program was implemented in association with the Clean Water Program to assess the nature of three prehistoric sites known or suspected to be within the impact zone of the Sunnydale/Yosemite route. The testing program found that two prehistoric sites, CA-SFR-7 and the Griffith-Shafter Shellmound, were situated within the route and would be impacted by construction of the facility.

The 1980 archaeological overview discussed the extent of information available pertaining to the pre-European inhabitants. Both archaeological and ethnographic data were found to be sparse. While little archaeological work

has been completed and the urbanization of San Francisco would appear to have effected the destruction of much of the archaeological resource base, there still appears to be opportunity for information to be retrieved from remaining sites, including those identified by Nelson and those which he overlooked, either deliberately or inadvertantly. Although changes in shoreline as a result of filling and other processes associated with urban and industrial development make identification of site locations difficult, the use of early maps and application of findings regarding environmental characteristics associated with known prehistoric sites makes the task not an impossible one. The field work which resulted in the rediscovery of CA-SFR-7 and the discovery of the Griffith-Shafter Shellmound is proof of this statement. Buried beneath 16 to 29 feet of fill, CA-SFR-7 was found to contain up to eight feet of apparently intact midden. The Griffith-Shafter Shellmound was up to seven feet in thickness, buried beneath 8 to 10 feet of fill.

Because of the depth of the overburden, further investigation of these sites, to mitigate impacts caused by construction of the Sunnydale/Yosemite facility, would be difficult to implement. Both sites are likely to contain materials which would further scholarly understanding of San Francisco's prehistory, and, as such, are likely to be eligible for entry in the National Register of Historic Places. Since engineering constraints and cost would appear to make avoidance of the prehistoric resources unfeasible, impact mitigation by data recovery would be appropriate. In the opinion of this writer, the four-phase excavation and investigation program recommended by California Archaeological Consultants would be the most efficient and cost effective method to implement a data recovery program. It warrants pointing out that the implementation of the so-called "rapid recovery" methods as part of Phase 3 is in keeping with procedures issued in November 1980 by the National Advisory Council on Historic Preservation under the title "Treatment of Archaeological Properties: A Handbook."

Research conducted to date has identified a number of environmental variables associated with prehistoric site locations; for example, proximity to water, location at or near sea level, and the transition between different environmental zones have been recognized as correlated with archaeological site locations. Taking into account these factors and other environmental variables, the writer, in consultation with Resource Consultants, examined the 1852 and 1869 U.S. Coast Survey maps which had features of the Bayside Facilities

superimposed over them. Three areas of particular prehistoric archaeological sensitivity were identified, as follows: (1) The southern margin of the outlet of Islais Creek, in the zone along the line where the Sunnydale/Yosemite route crosses the old marsh and enters the mainland (the portion of the route located along Newhall and Fairfax streets); (2) The Bay View Park area along the line where the route transects the old marsh (the portion of the route along Ingalls Street between Thomas and Underwood avenues and between Armstrong and Fitzgerald avenues, and along Carroll Avenue between Ingalls and Hawes streets); (3) Within the Hunters Point portion of the Bayside Facilities in the area where the 1852 map depicts an old farmstead (the portion of the route in the blocks between Galvez and Innes avenues and along Innes Avenue).

Unlike the Nelson sites and the Griffith-Shafter Shellmound, there is neither direct nor indirect evidence that Native American archaeological sites are indeed located within the zones identified as archaeologically sensitive. Therefore, a testing program such as the one that identified CA-SFR-7 and the Griffith-Shafter Shellmound in the field would not be appropriate. Instead, a program of construction monitoring by a trained archaeological technician is recommended for each of the three identified sensitive zones.

On the basis of past experience with monitoring large scale construction projects, this writer holds the opinion that, if archaeological resources are encountered, significant damage can not be avoided even in the best of circumstances. Considering the depth below present ground surface at which a site, if present, is likely to occur, and considering the pace of large scale earth removal, the major aim of the monitoring program would be the identification and recording of the buried archaeological resource. Data recovery in the conventional sense would be implemented only if it could be feasibly coordinated with the construction work, e.g., conducted as emergency salvage after normal working hours or on week ends.

The recommended monitoring program would be conducted as follows: (1) The archaeological technician would make daily visits to pertinent construction sites and would be authorized to observe earth removal as well as to examine wall profiles exposed during construction when deemed appropriate; (2) If materials of archaeological interest are unearthed, the technician would notifiy the Principal Archaeological Investigator (PAI) who would himself, or if unavailable for legitimate reason through a delegated representative with training and

experience sufficient for certification by the Society for Professional Archaeologists, visit the site to evaluate the finds; (3) The PAI would determine whether emergency salvage was pertinent and, in consultation with Resource Consultants, the City, and the contractor's representative, would arrange for such work to be done. Only if unique significant archaeological remains were determined to be present, e.g., cultural materials in association with extinct megafauna or otherwise suggestive of the Paleoindian period, would a delay in construction in the site area be requested.

In sum, a literature and records search provided information regarding the potential for Native American archaeological sites to be present within direct impact areas of the Sunnydale/Yosemite route. Subsequent field work resulted in the identification of two prehistoric sites and the information of impact mitigation measures pertinent to the two sites and their subsurface contexts. In addition, the literature and records search allowed identification of environmental variables most frequently associated with Bay Area prehistoric sites. Analysis of the project route laid over early topographic maps resulted in the identification of three zones of archaeological sensitivity within the construction route. A monitoring program was recommended to ensure the identification and recording of prehistoric archaeological sites if any should be encountered within the sensitive zones during construction. At each phase of the project, cost effectiveness and efficiency served as criteria against which various action alternatives were evaluated.

Historic Archaeological Recommendations - Vance Bentê and Roger Olmsted

Powder Houses on Carroll Avenue. As currently planned, excavation along Carroll Avenue for the Yosemite Canal of the Sunnydale/Yosemite Facilities effectively will bisect the area depicted and noted on the 1895 Coast and Geodetic Survey Map as "POWDER HOUSES." The volatile and, therefore, unsavory character of such facilities can be traced in their outward migration as the city grew, yet their persistence is testimony to their necessity and importance. As a commercial enterprise crucial to the industries that accelerated the growth of San Francisco and that quite literally helped shape San Francisco, details of their design and operation are both scant and dispersed.

In 1979, test excavation conducted by Wirth and Associates encountered the powder magazine of Gibbons and Lammot on Potrero Point (Wirth and

Assoc. 1979: 31-36). Associated artifactual materials were absent or minimal, but substantial structural remains were observed and recorded (Wirth and Assoc. 1979: Figures 10, 11 and 12). The historic significance of the Gibbons and Lammot site was demonstrated through six points of association with the development of San Francisco. Inasmuch as these values primarily were to be realized in archival/documentary research and as excavation had not revealed associated artifacts that would make a meaningful contribution, the potential of historical archaeological investigation was limited. It was concluded that interpretive values were diminished if not precluded by the features' depth below surface, but that the features were protected by that same condition.

Despite a lack of information to suggest a more meaningful artifactual deposition might be encountered at the Carroll Avenue "POWDER HOUSES," it is apparent from grade data that if structural elements remain they would be close to or not far below extant grade. Although the possibility of their close proximity to ground surface has perhaps increased the likelihood of deterioration and destruction, whatever does remain easily might be exposed and evaluated for interpretive purposes.

That such remains are not presently visible or have gone unrecorded is apparent from the combined **Resource Management Plan, General Development Plan, and Environmental Impact Report for the Candlestick Park Recreation Area**, which notes that the project area contains ". . .no known cultural resources in the traditional sense. . ." (State of California 1979: 12). Resolution of this contradiction with respect to the archival and photographic evidence must look to further evaluation.

Recommendations. Owing to the potential value of powder house structural remains as a public historic site, particularly in an area already set aside as a State Recreation Area, the following recommendations are offered:

1. Conduct a reconnaissance survey in the area to determine if structural or artifactual remains can be detected. If remains are observed, measures should be initiated to guarantee appropriate recording of the resources, and consultation with State Recreation Area representatives should occur prior to initiation of the project.

2. If remains are not observed during the reconnaissance, then a monitoring program should be arranged to record any features or structural

remains encountered during trenching for construction. Considering that any remains observed in the course of trenching along Carroll Avenue would be continuous with, and in fact a portion of, the complex that is likely to extend onto the park property, the presence of a state representative who is familiar with appropriate maps, photographs and related archival documentation would almost certainly contribute to the eventual evaluation and understanding of remains located on the adjacent park property.

The objective of the sewer excavation monitoring program would be recording and artifact recovery as found appropriate by the Principal Investigator, in consultation with Clean Water Management, reviewing agencies, and State Park personnel—essentially a very rapid recovery program with little or no significant construction delays. The overall goal is to avoid easily preventable data and artifact loss that could be of importance in itself and to the State Park interpretive program. The portion of the site on the State Park property is the part that could be excavated at some future date, with no pressure of time, and with the physical possibility of preservation and use as a permanaent interpretative site.

3. The monitoring should take place along the Carroll Avenue alignment from 225 feet west of the west side of Fitch Street, westward a distance of approximately 250 feet.

1852 Farmstead on Hunters Point Road

In the eastern half of the block bounded by the lines of Hawes-Griffith and Hudson-Innes, the 1852 Coast Survey map depicts a fenced parcel containing a structure. As discussed with respect to the boatyards later located in this vicinity, the Hunters Point transport will bisect that block and the historic property once located there. The potential for discovery of historical archaeological remains representing the 1850 period may or may not be disturbed by some degree of subsequent impacts to that area—but should such resources be encountered, the age of deposition, coupled with the association to a farmstead and presumably the activities of a single family, would position the resource as unique with respect to the historical archaeology of San Francisco. Although the representativeness of a sample recovered from a single farmstead of the mid-nineteenth century must be judged in that context, when combined with other samples it is information that will provide a basis for comparative analysis.

Features that might be expected and that would contain material data useful in the delineation of the occupation include disused privy pits and/or wells that might contain refuse or discards representing transitional phases or episodes in the properties' life history.

The series of historical maps identify quite accurately the locations of subsequent structures in 1882, 1900, and 1919 in this localized area that will be transected by the sewer. The record of exact locations of structures can be improved by definition of occupancy through further archival research if what appear to be significant deposits of cultural materials occur.

The problem of "clutter"—confusion as to the real date of deposits and differentiation between portions of apparently contiguous deposits—is a difficulty in urban historical archaeology that often leads to confusing or fruitless attempts to interpret the information potential of artifact deposits. In some cases, the clutter difficulty is inherent in the physical mixing of materials in the deposit. In many cases, however, "clutter confusion" may stem from the archaeologists' lack of data as to details of the historical development of the site.

In the conclusion to the Clean Water Program's final report on the North Shore and Channel Outfalls archaeological program, **Behind the Seawall** (Pastron and Prichett 1981: 529), it is remarked upon that prior archival research reverses "the more commonly encountered situation" of the archaeologist. Certainly in the case of urban historical archaeology in a place with such extensive historical records as San Francisco, this reverse situation—where the archaeologists have substantial historical archival input prior to and even immediately accompanying their field work—should itself be the "commonly encountered situation."

Recommendations: An archaeological monitoring procedure for the 1852 farmstead site has been recommended above, in connection with sites of prehistoric resource sensitivity. The added historical sensitivity of this site suggests an overlapping monitoring program involving slightly different or amplified procedures.

1. Monitoring of the proposed Hunters Point sewer excavation for a distance of approximately 300 feet along Hunters Point Boulevard between the center line of Hudson Street and the center line of Innes Avenue should be continuous.

2. Prior to commencement of any construction excavation, the proposed monitoring program would begin with preparation of site map overlays of successive structures and occupancy or use information at a scale of 50 feet to the inch. This scale has the virtue of being identical to that of the published Sanborn maps; furthermore, as the best of the other historical maps range in scale from 1: 10,000 to 1: 6,000, the limits of their accuracy are reached or exceeded at the 50 feet-to-one inch scale, which is equivalent to 1: 600.

3. If materials of archaeological interest are unearthed during construction excavation, the archaeological monitor would notify the Principal Investigator or his delegated representative if he is unavailable. The Principal Investigator would immediately visit the site to evaluate the finds, following consultation procedures outlined in the prehistoric site recommendations.

4. Should the significance of the deposit potential, as initially revealed, lead to recommendations for ceasing full-scale construction excavation at the sensitive portion of the alignment, a research design specific to the nature of the resources encountered should be prepared. It must be kept in mind that to the extent that observation of National Register significance potential is prompt, construction excavation will have done minimum damage to the resources, but for the same reason, the extent of the resources will still be concealed.

5. Archaeologically supervised or conducted excavation may be rapidly undertaken to identify structures associated with subsurface foundations, together with recording, collection, or selection of superficial artifacts as the Principal Investigator deems necessary. At the same time, identification of deeper subsurface deposits would occur. These might be privy or trash pits, or filled wells.

6. Preliminary analysis of artifact deposit locations and analysis of initial observations as to type and probable quantity of artifact deposits by the Principal Investigator and any assistants or consultants he requires should make possible amplification of the research design referred to above (4), based on the information from preliminary controlled excavation (5) and analysis (6). The decision to continue archaeological procedures should be arrived at and justified by a research design that includes identification of resource elements and data recovery potential that are indicative of probable National Register significance.

100 0 100 200 300
SCALE IN FEET

LEGEND
- EXISTING SEWER / TUNNEL
- PROPOSED SEWER
- PROPOSED TRANSPORT / STORAGE
- PROPOSED FORCE MAIN
- OVERFLOW
- JUNCTION BOX
- INTERCEPT EXISTING SEWER

DOUBLE 10'W x 9'D
FITCH ST
RESERVOIR
PUMP STATION
20" ϕ DRY WEATHER
GRIFFITH ST
66" ϕ WET WEATHER
12" ϕ WATER MAIN (for spraywater)
21" ϕ
HUNTERS POINT TUNNEL
EXISTING 16" WATER MAIN
PROPOSED STATE PARK BOUNDARY
YOSEMITE CANAL
6'W x 4'D, 20'W x 14'D DUAL COMPT
ABANDON YOSEMITE PUMP STATION
FOR DETAIL SEE FIG. 6-4
84"
CARROLL AVE
10'W x 11'D, 6' DUAL COMPT
66
HAWES
PALOU AVE
QUESADA AVE
REVERE AVE
SHAFTER AVE
THOMAS AVE
UNDERWOOD AVE
VAN DYKE AVE
WALLACE AVE
YOSEMITE AVE
ARMSTRONG AVE
BANCROFT AVE
DONNER AVE
EGBERT AVE
FITZGERALD AVE
GILMAN AVE
MCALLISTER ST

MAP 8b
BAYVIEW AREA
1980
SUNNYDALE / YOSEMITE (CENTRAL)
1" = 300'

Boatyards at Hunters Point

Proposed construction of the Bayside facilities, specifically the Hunters Point sewer, the force main on Illinois Street of the Mariposa facilities, and the 26th Street connection of the Crosstown facilities, will pose an adverse impact to no less than five historical boatyard sites along the original shoreline of Hunters Point and the Potrero. The boatyard sites transected by the Hunters Point alignment are:

1. At Keith Street and Evans Avenue, a boatyard shows in a photograph taken in 1870 or before. This site was abandoned, presumably because of the encroachments of the Butchertown enterprises, by 1882.

2. Where the Hunters Point alignment uses the P.G. & E. right-of-way east of Hunters Point Boulevard, there was a boatyard site occupying the block bounded by the lines of Ingalls, Hawes, Evans, and Fairfax. This yard appears on the 1882 U.S. Coast & Geodetic Survey manuscript map, and was the location to which one of the boatyards near Keith and Evans migrated during the 1870's. In later years (up to 1919) this was the yard of H. C. Thomsen.

3. Where the Hunters Point transport crosses the block bounded by Hawes, Griffith, Hudson, and Innes, a boatyard was located on the shoreline at Hudson near Hawes sometime after 1882. This was also the location of a farmstead discussed above, which in turn may have been built on a prehistoric site.

On the Northern Bayside Illinois Street alignment:

4. Winslow's marine ways were located at Illinois Street and 20th Street, on George Allardt's tidelands survey maps of 1868-1869.

On the Crosstown facilities 26th Street alignment:

5. At 26th Street and Iowa, the 26th Street alignment transects approximately the centerline of a boatyard (from the upper shoreline out the length of the marine railway) that appears on the Allardt map of 1868.

In addition, the Illinois Street alignment transects the marine ways of H. J. Ervin (1868) north of 20th Street, but the excavations should not be of a depth sufficient to impact the yard. The yard of Henry Owens was adjacent to the western end of the 20th Street Transport/Storage. In both of these cases, abandoned watercraft may be subject to impact—but not remains of direct shipyard operation.

These yards are important because they served builders and refurbishers of numerous watercraft. Among the notable local vessel types built and repaired were the San Francisco Bay scow schooners, a craft that emerged in the 1860's in response to the particular needs of the Bay Area. Somewhat unique in purpose, the scow schooner was fated by progress to serve under sail for little more than fifty years and then decline in its numbers with the introduction of the internal combustion engine. As a primary vessel to ply the rivers, bays, and delta of central California, its origin and details of construction come under scrutiny of the historian and maritime architect alike. That little is known of the vessels that were the antecedent form of the scow schooner, or of its variant construction particulars, lends added significance to the materials and information that might be recovered from sites such as those listed above.

Predicting the type and extent of data that might be encountered, or its potential to contribute to the shipbuilding history of the West Coast, is difficult because many recent discoveries have provided answers where previously there were no questions. The treenails of the **Lydia** and the capstan foundation at King Street are primary examples of such occurrences. Evaluation of possible "information loss" is a consideration that, when found to exist, will enhance the recognized significance of a specific type of site. In view of the relative lack of archival data regarding this era of West Coast shipbuilding and the minimal extant photodocumentation of the activity, the potential for information loss appears high, although such a conclusion is inferential.

A more accurate assessment of such information loss can, in some cases, be gained from previous excavations conducted at similar sites. Unfortunately, only two such occurrences are recorded for San Francisco, that of the King Street capstan discovery (mentioned above) and that of the Boole and Beaton Yard visited by Roger Olmsted in 1977. The former was limited by the extent of exposure, and the latter went without a formal monitoring program, as conditions precluded recording or data retrieval and also precluded assessment of information loss.

Information that might otherwise be lost includes data crucial to the reconstruction of 19th century technological processes, a common focus of "industrial archaeology." Such understandings are often more than merely academic, as when they receive modern application in countries where "high technology" is unavailable. Observation of the sites along with archival data,

photographic study, and interviews could contribute to a more complete history of their operation and perhaps greater insight into the social context of the yards as fibers of the fabric that was 19th century San Francisco.

In light of the predicted impacts, local significance and interest concerning these yards and their craft, a monitoring program to record and evaluate any remains encountered is strongly recommended. To provide adequate observation and the necessary expertise consistent with the nature of the potential resources, the program should be properly coordinated to insure the presence of a monitoring team during all excavations at or in the vicinity of the various yards. A maritime historian/architect is the most judicious choice to properly and efficiently monitor and assess any discoveries of a maritime character and such an individual should be present on the monitoring team, joined by at least one individual of a more generalized historical archaeological background.

Recommendations: The portions of the three shipyard sites that appear subject to impact by the proposed Hunters Point sewer excavation are of two different types. The yard site of the late 1860's at Keith and Evans Avenue will be transected at a point around the high tide line, in the vicinity of the head of the marine railway, and in the area where repair work on ships would most commonly have been accomplished. The areas of potential impact to two boatyard sites on the eastern side of Hunters Point Boulevard between Evans and Fairfax and in the line of Hudson Avenue (or immediately south of it) deal with the backyard area of supporting activities.

It is believed that an archaeological monitoring program specific to the exact areas described below would prove the most cost-effective method of: a) determining whether or not deposits of informational value of high importance may be located at these sites; b) conducting recording and data recovery programs if indeed the informational value of the sites proves to be important.

None of these potential archaeological deposits lies at such depth that archaeological field testing trenches are impractical. However, the lengths traversed and the probability that resources of importance may lie in small areas that could easily be missed by anything less than long and very costly trenching argues against such preconstruction testing—or at least recommendation for such testing at this time.

It must be kept in mind that the informational potential of the shipyard sites at not only Hunters Point, but at two locations on the Potrero, is enhanced

by the fact that proposed excavations will transect different areas of a total of five sites. Should the first, or one of the first, sites encountered by construction excavation indeed prove to be of National Register significance, it would be appropriate to reevaluate all recommendations relating to mitigation of these boatyard sites. It might become clear as the result of such an important find that preconstruction field testing would be a desirable and cost-effective measure for the remaining identified sites.

The archaeological monitoring recommendations are identical to those proposed for the "1852 Farmstead on Hunters Point Road" above; the locations to be monitored are as follows:

1. The same locations as for the farmstead site above—a distance of approximately 300 feet along Hunters Point Boulevard between the center lines of Hudson Street and Innes Avenue.

2. The rear portion of the former H. C. Thomsen yard (later H. Christensen), from the point that the alignment crosses the projection of the south side of Evans Avenue to the projection of the north side of Fairfax Avenue (about 400 feet).

3. The shipyard location seen in Plate 24, from the western end of the proposed Hunters Point sewer alignment on Evans Avenue (approximately the centerline of Keith Street) to a point 200 feet eastward on Evans Avenue.

Potential Sunken Hulks

It does not appear probable that sunken vessels or watercraft are likely to be encountered in the proposed Sunnydale/Yosemite or Hunters Point facilities construction. The segment of the proposed sewer on Custer Avenue has been cited as a possible, if not probable, location. The same procedures for mitigation of such an accidental find as are found in the Division Street Connection Recommendations are repeated.

Archival research has not located any buried watercraft or cultural resources of probable National Register significance in the construction area of the Sunnydale/Yosemite or Hunters Point projects, but has pointed out the potential sensitivity of the area to such archaeological remains as watercraft abandoned in the late 1850's or the 1860's. In the event that finds of such significance should be encountered in the course of excavation, a qualified Principal Investigator, or his designated Co-Investigator with special expertise

LEGEND:

EXISTING SEWER

PROPOSED SEWER

CS CONTROL STRUCTURE

ICSSOC ISLAIS CREEK SOUTH SIDE OUTFALL CONSOLIDATION

JUNCTION BOX

INTERCEPT E...

100' 0 100' 200' 300'

SCALE IN FEET

ARMY ST.

CUSTER AVE

ICSSOC

DAVIDSON AVE

QUINT ST

EVANS AVE

PHELPS ST

CARGO WAY

SOUTHEAST WATER POLLUTION CONTROL PLANT

NEWHALL ST

ALVEZ AVE

MENDELL ST

FAIRFAX AVE

MAP 8C

ISLAIS CREEK AREA

1980

SUNNYDALE / YOSEMITE (NORTHERN)

1" = 300'

MAP 8d
HUNTERS POINT
1980
HUNTERS POINT FACILITIES
1" = 300'

LEGEND
EXISTING SEWER / TUNNEL
PROPOSED SEWER
JUNCTION BOX
INTERCEPT. EXISTING SEWER
OVERFLOW

100 0 100 200 300
SCALE IN FEET

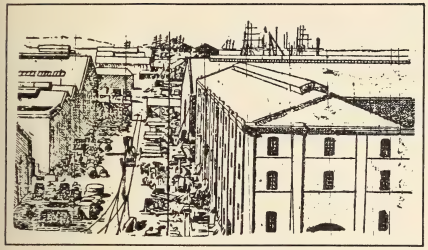
MENDELL ST. INTERCEPTOR
MENDELL INTERCEPTOR CONNECTION
66" ϕ
72 ϕ
EVANS AVE.
ALT. 2
90" ϕ
72" ϕ
EVANS AVE. INTERCEPTOR
FAIRFAX AVE.
CONNECTION TO NEW 90" ϕ SEWER
GALVEZ AVE.
EVANS AVE. INTERCEPTOR
KEITH ST.
MENDELL ST.
HUDSON AVE.
HIGH LEVEL WEIR STRUCTURE
27" ϕ
EVANS AVE. OUTFALL
42" ϕ
HUNTERS PT. BLVD.
MIDDLE POINT ROAD
HUNTERS POINT SEWER TUNNEL
HUDSON AVE. OUTFALL DIVERSION STRUCTURE
EXISTING HUNTERS POINT PUMP STATION
36" ϕ
INNES AVE.
PLUG GRIFFITH ST. NORTH OUTFALL

in the field of historic archaeology, shall be empowered with the authority to direct an immediate cessation of construction activities which might impact the above mentioned cultural resources. In the event that such an occurrence takes place, the Principal Investigator shall, within seventy-two (72) hours, produce a preliminary report which describes the nature of the find and its archaeological significance and which makes recommendations for procedures to mitigate the adverse impact to said cultural resources by the continuation of construction activities. The City and County of San Francisco shall assume the responsibility of taking whatever actions are required to ensure that adequate mitigation measures are undertaken and completed according to existing federal and state statutes, regulations, and precedents before construction activities again commence within the construction project.

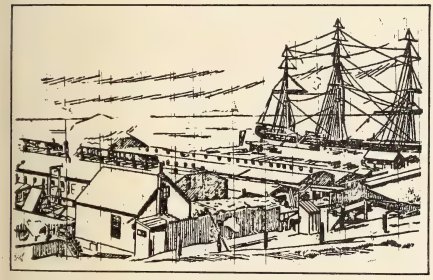
Instruction of Construction Personnel.

The Principal Investigator or his designated Co-investigator shall have the responsibility of informing the resident engineer, the construction crew chiefs, and foreman as to the value of historical archaeology in general and its specific relationship to the Clean Water Program. In addition, the Principal Investigator, or his designate, shall describe the types of material remains that would constitute rare or unexpected finds from an archaeological standpoint. In conjunction with the Principal Investigator and the Co-investigator, the resident engineer shall have the responsibility of ensuring that no unauthorized collections of cultural materials be made at any time during the excavation for the projects by members of the construction crews or other individuals. The resident engineer shall also have the responsibility of noting the locations of any cultural materials that are discovered in non-monitored sections.

NORTHERN BAYSIDE



THE UNION IRON WORKS.



PACIFIC ROLLING MILLS.

THE SUGAR REFINERY.

POTRERO HOME.

The Potrero As It Is . . .

There is no portion of San Francisco where the work of the mighty hand of man is shown so plainly, perhaps, as in that district known as the Potrero. Elsewhere within the city's boundaries vast changes have been brought about, sometimes with marvelous rapidity, but always there has been some point of natural vantage, some holding ground, as it were to erect the contemplated structure or improvement. . .

But here it is far different. The Pioneers of progress at the Potrero -- that older portion of it, with which we are most familiar -- have had first actually to create the very ground upon which have been erected those vast establishments which have given name and fame as the very foremost center of mechanical industry and wealth producing enterprise upon the Coast. Where the massive factories now stand solidly along the level shore, was once but a choice between precipitous hillsides, along which a goat could scarcely make his way, and oozy, foul-smelling marshes. . .

Great stretches of craggy bluffs have disappeared. Vast masses of rock have been blasted away from the hills and thrown upon the marches. . .

From ***The Daily Examiner***
August 11, 1889

NORTHERN BAYSIDE

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INTRODUCTION TO THE NORTHERN BAYSIDE

The Northern Bayside falls into two distinct geographical areas: (1) The Potrero and Mission Bay, and (2) The North Shore, which includes that area of San Francisco's northern waterfront that extends from Bay Street to Folsom Street.

At the request of the Clean Water Program, an interim separate study was done in advance of this report on the Division Street connection on Berry Street. This was done to accommodate contractual necessities. The Division Street excavation is in the vicinity of 7th and Channel Streets, between the two geographical areas listed above. We have included this report because the proposed sewer construction will impact a large urban trash disposal site that dates back to the mid-1880's, perhaps earlier. Urban trash disposal sites have been of considerable interest to historical archaeologists and, therefore, we have included both the study and the archaeological recommendations.

Because the Clean Water Program has just reprinted 400 copies of **San Francisco Waterfront**, which dealt in considerable detail with structures along San Francisco's northern waterfront, we often have referred to this volume rather than repeating sections that are relevant to the area. We have studied the Bay Street extension, as some potential cultural resources pertained in part to the N-5 Pump Station excavation that unearthed a large quantity of Chinese artifacts (Pastron, **et al.** 1981: **passim**). We have also surveyed the Folsom Street leg of this proposed excavation, as it was not included in the North Shore and Channel Outfalls construction.

NATURAL SETTING

The Northern Bayside facilities do not have such convenient geographical unity and pattern of historical development as the Sunnydale/Yosemite and Hunters Point facilities. However, most of the proposed facilities, and nearly all of the areas of potential archaeological cultural resources and potential impact on such resources, do fall into an area of geographical and historical descriptive unity. This area is Potrero Point, with the associated former tidelands of Mission Bay to the north and the Islais Creek estuary to the south. It would be both convenient and comprehensive, from the standpoint of this section of the historical cultural resources survey, to call this the Channel-Islais area—but unfortunately that name has been appropriated by one of the proposed facilities for the area, and its use as a general term would lead to confusion. Hence, we will refer to "the Potrero" frequently with regard to the historical setting.

The Soule site of the proposed Crosstown facilities, together with its connection along 26th Street to the proposed Channel-Islais Transport, and the proposed Islais Creek Transport/Storage across what was the mouth of the estuary, forms an historical-geographical unit with potential resources of the same type in the case of the Potrero-Mission Bay area. As a result, some of the resource areas of the Crosstown facilities will be discussed in connection with the Potrero, but specific significance and any recommended mitigation measures will appear in the Crosstown facilities chapter.

The proposed North Shore Transport facilities, along The Embarcadero, are so far removed geographically and so different with regard to description of potential resources that they will be appended as "The North Shore of the Northern Bayside."

Mission Bay

The Mission Bay-Potrero Point area under discussion fits on single maps of convenient size at the one-inch-to-600-feet scale adopted for the historical maps in this report. Map 9, a section of the 1852 manuscript of the first U.S. Coast Survey chart of San Francisco, shows the form of Mission Bay and the placement of the proposed facilities in this long-since filled cove that was once such a prominent and important feature of the natural shoreline of the San Francisco peninsula. Maps 1 and 2, shown in the first section of this report, place Mission Bay and the Potrero in perspective relative to the city.

Not only was there a broad tidal mud flat extending outward from the shore of Mission Bay, but the bay itself was very shallow, rarely exceeding a foot in depth at extreme low tide inside of the line from Steamboat Point to Point San Quentin (as "Point of Rocks" or the northern extremity of Potrero Point is marked on many maps). The Division Street Connection and the northern part of the proposed Channel-Islais Transport lie entirely within portions of this former bay. The Channel-Islais Transport intersects the southern shoreline of Mission Bay about 260 feet north of Mariposa Street.

Potrero Point

Mapmakers moved the name Point San Quentin from the northernmost Point of Rocks to the major promontory of the Potrero on later maps of the 1850's through the 1880's, but "Potrero Point" was probably the most common usage in the late 19th century. Indeed, "The Potrero," during this period of development and change, almost invariably referred to the point, not to Potrero Hill to the west. The Tennessee Street and Illinois Street proposed alignments transect a spur of Potrero Hill that formed the point. This spur, in the line of both Tennessee and Illinois streets, originally rose to a height of over 100 feet, while today it appears level to a person driving a car on these streets.

Thus, the Channel-Islais Transport and the Mariposa facilities (as well as the 26th Street connection to the proposed Channel-Islais Transport) cross areas where the original lay of the land and the processes of subsequent development involve three distinct conditions: (1) shallow water areas of fill, (2) low-lying lands near the shore that were originally below the present street grades (and, therefore, may contain remains of shoreside structures and activities), (3) areas where cutting has been so deep as to remove the possibility of any cultural

Mission Cr.
Mission Rock
MAP 9
POTRERO AND MISSION BAY
U.S. COAST SURVEY M.S.
1852
MARIPOSA & CHANNEL/ISLAIS
1" = 600'
N
SAN FRANCISCO
DIVISION STREET CONNECTION
(BERRY STREET)
OWENS STREET
Pt San Quentin
MARIPOSA STREET
RES. AND P/S
ILLINOIS STREET
TENNESSEE STREET
20TH STREET
23RD STREET
26TH STREET
ARMY STREET
Du Vree's Cr.
(ISLAIS CREEK)

remains (even those originally buried to a depth of six or eight feet, such as wells and privy sites). The following description of each of the proposed alignments and facilities will identify the areas of these different conditions relative to the present street grid.

Mariposa Transport/Storage Facilities. The Illinois Street alignment, from its southern end to a point approximately 400 feet north of 23rd Street (and including the 23rd Street connection to the existing Third Street sewer), lies entirely in what was bay and tidelands in 1852.

North of the original shoreline, for a distance of some 1500 feet, the Illinois Street alignment transects what was the original land mass of Potrero Point. Most of this land was a hill 40 to more than 100 feet high, and the hill sloped rather steeply to the bay on both the north and south sides of the point. Thus, a comparatively short segment at the north and south shorelines is filled area, the rest lying in the cutaway portion of the hill. Within the length of the original dry land crossed by the alignment, the northern limit of any reasonable physical possibility of significant cultural remains is the southern property line of 20th Street; the southern limit is a point no less than 1300 feet south of the southern line of 20th Street.

Approximately 150 feet of the Illinois Street alignment north of 20th Street includes the original shoreline and low area that has been filled to its present elevation. This sensitive area is described in the section dealing with ship and boatbuilding operations.

It must be kept in mind that the proposed Illinois Street excavation is shallow—reported to be no more than 5-6 feet deep—and that Illinois Street has been subject to numerous prior impacts from the construction of utility lines. However, the impact of prior utility excavations is not necessarily significant, for two reasons: (1) the previous excavations are not exactly where the proposed excavation will be; (2) prior excavations also appear to have been shallow.

For example, if a prehistoric site of the kind revealed proved by recent testing at two locations in the Sunnydale/Yosemite contract area existed near the original northern shore of Potrero Point, between 19th and 20th streets, it would be irrelevant that older parallel sewer, gas, and electrical line excavations had previously passed through and destroyed part of the site if the remaining

portion indeed contained information of National Register importance. The new excavation might both permit recovery of important information and establish the existence of an important site that should be subject to further exploration when future excavation work is contemplated in the immediate area.

Another example of such a site could be a physically small area, such as a trash pit dating from 1869-70, connected with Winslow's shipyard, that previous excavations had missed. When the task of assessing prior disturbance becomes a matter of estimating impact within 2-4 feet vertically and 5-20 feet laterally, the predictions are hardly useful. Assessing prior impact resulting from the cutting of a whole street section from one roughly ascertainable level to an exactly know present level is more predictable.

The northern section of the Illinois Street alignment from the Mariposa Street sewer line of the proposed facilities, to a point approximately 1175 feet southward, traverses what were the shallow waters of the Bay between "Point of Rocks" and "Point San Quentin" (Potrero Point proper). The original shoreline in this area, marshy in the vicinity of Mariposa and 18th streets, followed very nearly the line of present 3rd Street that is one block to the west. (The city blocks in the Potrero area, as in the Bay View and Hunters Point areas, are 200 feet wide.) The proposed Mariposa Pump Station and Reservoir site is in the original tidal zone between 3rd and Illinois streets, on the south side of Mariposa Street.

Channel-Islais Transport/Storage: Tennessee Street. The southern half of the proposed Stage III Channel-Islais sewer follows the line of Tennessee Street. The southernmost 1250 feet of the Tennessee Street alignment was, in 1852, in the shallow bay water south of Potrero Point. Where the alignment crosses the original shoreline area, there was a small, somewhat semi-circular marsh which (as can be seen on Maps 9 and 10) was the outlet of the drainage basin formed by the main heights of Potrero Hill and the large spur of the hill forming Potrero Point. The proposed Tennessee Street excavation is sufficiently deep (17 to 19 feet) to extend entirely through the fill, which extends from the natural shoreline to a point as much as 1100 north of the 1852 shoreline (1250 feet north of present 26th Street.)

From this point, about 2350 feet north of 26th Street, to approximately 200 feet south of Mariposa Street, modern Tennessee Street traverses a cut in

Potrero Nuevo

Point San Quentin

MISSION BAY

Steamboat Point

Mission Rock

MAP 10

U. S. COAST SURVEY

1857

the original hill sufficiently deep to have previously removed any cultural resources, including those originally buried to depth of 6-8 feet. The 700 foot sewer segment south of Mariposa Street crosses, for the most part, a low-lying and subsequently filled area bordering the original small marsh between Tennessee and 3rd streets.

Channel-Islais Transport: Mariposa Street on Mariposa to Owens. The proposed Mariposa Street alignment crosses a filled area of low lying land between 3rd and Tennessee streets, then cuts through an area where the original elevation was very close to the present grade on Mariposa, between Tennessee and Minnesota. The next 225-feet of the north-south sewer segment, on the line of Minnesota Street between Mariposa and Owens, traverses filled lowland and shoreline marsh, as seen on the 1852 chart (Map 9).

Channel-Islais Transport: Mission Bay Area. From about 225 feet north of the proposed Mariposa Street sewer the Channel-Islais Transport lies entirely in what was originally the waters of Mission Bay. As a result, cultural materials that may be found would be those introduced with fill, with the possible exception of sunken watercraft.

PREHISTORY

There are no recorded prehistoric sites in the alignment and proposed construction areas of the Northern Bayside facilities. This absence of recorded sites probably reflects the fact that major filling and development of the Potrero had already taken place before 1908-1910, when Nels C. Nelson attempted a systematic recording of shellmound locations. By that time, the only visible sites were those south of the ridge line of Hunters Point and on the south side of Islais Creek.

The 1981 archaeological field testing program summarized in the Sunnydale/Yosemite section of this report revealed one certain and one probable site that Nelson had not identified. In the case of the site definitely ascertained to exist on Shafter near Griffith, leveling of the mound and very slight "improvements" made by Nelson's time were sufficient to have concealed the site from him, even though he inspected the area closely enough to locate partially destroyed shellmounds nearby.

No historical map indications as clear as the 1852 Coast Survey markings that led to exact location of the Griffith-Shafter shellmound are to be found in the Potrero Point area. At the same time, the curious hachured marking that identified the Griffith-Shafter mound was unique to that site and the nearby probable site at the southern edge of Thomas near Hawes. The 12 sites that Nelson identified and mapped (Nelson 1909: **passim**) in the Candlestick Point, Bay View, Islais Creek, and Hunters Point area were not marked in any such way by the 1852 Coast Survey team. Therefore, the absence of any hachure marking of a shellmound on the 1852 manuscript chart (Map 9) is no indication of the absence of a site that might have been clearly visible.

What the 1852 Coast Survey manuscript map, together with information from the 1857 and 1869 U. S. C. S. maps, does show is evidence of areas of particular likelihood or sensitivity. These localized areas are identified by topography suggestive of a fresh water supply in conjuction with shellfish sources and by the appearance of post-1850 structures in the same areas. The appearance of houses at remote spots topographically identifiable as potentially sensitive even more strongly suggests the possibility of a natural fresh water supply because these houses would have had a well for water, which suggests a nearby spring possibly dating from native American Indian times. Comparison of the 12 sites identified by Nelson with house and fenced plot locations in the very sparsely settled "South San Francisco" area of the Bayside facilities as seen on the 1869 Coast Survey map shows a close correspondence in exactly half of the cases. Of the remaining 6, two of the Native American or prehistoric sites were on the precipitous shoreline slopes of Candlestick Point and unsuited for later house and garden sites. The recently identified Griffith-Shafter mound was also occupied by a house as early as 1852.

The conclusions to be drawn relative to the Potrero area from identified sites as compared to topographic analysis and the appearance of early structures is that while a combination of natural and cultural features suggestive of prehistoric sensitivity does indeed identify specifically localized areas of substantial resource probability, early houses are not necessarily associated with such sites; indeed, in some cases the prehistoric sites occupy locations that appear topographically most unpromising on the maps. Therefore, we can only seek to identify the "high possibility" sites.

Areas of Notable Prehistoric or Native American Sensitivity

Mariposa Facilities

The shoreline where the Illinois Street alignment crosses the original high tide line at the north and south sides of Potrero Point (Point San Quentin of the 1852 Coast Survey manuscript, Map 9) was steep—a low bluff (about 8 feet above city base) at the south shore. The 1857 U. S. C. S. chart (Map 10) shows a pair of structures and a small fenced enclosure between the point where the alignment crosses the south shore and the line of present 3rd Street. No structures of any kind are shown anywhere else near the Illinois Street alignment in 1857. The many structures on the northern slope of the point along the

alignment seen on the 1869 chart (Map 11) appear to be all oriented to the surveyed street grid, and associated with the shipbuilding and industrial development of the point that followed the opening of Long Bridge in 1865.

The physical possibility of encountering a prehistoric site in the shallow excavation for Illinois Street appears to be limited to an area from approximately 450 to 550 feet north of 23rd Street (the southern end of the alignment) and from approximately 1150 to 1250 feet south of Mariposa Street (the northern end of the alignment). As will be noted below, the probability of a prehistoric site having existed somewhere in the south shore area of Potrero Point between approximately Illinois Street and Indiana Street appears high.

Mariposa Street. The segment of the Mariposa facilities sewer alignment on Mariposa Street, between 3rd Street and Tennessee, is another area with the possibility of a Native American site. As the 1857 chart (Map 10) shows, there was a small marsh and some structures within 90-300 feet of the alignment, indicating the probability of a spring. The alignment's original grade level was below the present street level.

Channel-Islais Transport

The Tennessee Street alignment of the proposed Channel-Islais sewer transects comparatively long stretches of the north and south shoreline areas of Potrero Point that have a high probability of having been places where Native American sites were located and where subsequent filling would have protected the remains of such sites. The probability that the exact Tennessee Street excavation may encounter any such site is lower, but the specific segments of the alignment identified below can be described as particularly sensitive.

23rd to 22nd Street. This segment of more than 1100 feet of the Tennessee Street alignment crossed a shoreline sandspit, a small marsh that was the tidal outlet of a drainage basin between the main part of Potrero Hill and the spur of the hill forming Potrero Point, and the rising ground to the north of the marsh, as seen on Map 9 (1852). The northern end of this sensitive portion of the alignment is approximately 200 feet north of 22nd Street, at which point the cut in the original hillside is deep enough to have removed even buried portions of any potential prehistoric site.

It is important to note the raising of the grade of Tennessee Street to its present level in the area of the marsh seen on the 1852 and 1857 maps, and that the slope adopted for the proposed sewer descends to city base level as it crosses the former marsh and the original shoreline at 23rd Street. Therefore, since we can assume that the marsh was at least 3-5 feet below city base, the marsh portion of alignment will presumably not be excavated deeply enough to encounter the original surface level. At the shoreline there was a sandspit, where the proposed excavation reaches approximately city base level; if the sandspit stood 6-7 feet above mean high water (unusual but not impossible), it would be encountered. Again, on the rising ground north of the marsh, the proposed excavation will reach to the original surface level and below. If a monitoring program for the prehistorically sensitive area between 23rd Street and a point 200 feet north of 22nd Street were to be undertaken, the marsh area could be eliminated as a "no impact" possibility. However, the location of the Tubbs ropewalk, seen on the 1857 map, and subsequent historical development associated with the filling of the marsh is such that the whole segment should be considered archaeologically sensitive, offering the possibility of Native American sites.

The portion of the Tennessee Street alignment identified here as sensitive extends from approximately 1340 feet north of the proposed 26th Street connection to the Soule resevoir and pump station to approximately 2500 feet north of 26th Street.

Mariposa to South of 18th Street. Tennessee Street from Mariposa Street approximately 600 feet southward again transects an area of landfill. The 1857 Coast Survey chart (Map 10) shows a small marsh between the line of Tennessee and 3rd streets in this area. There was one small structure about 100 feet to the east of the alignment, and a larger structure with a fenced yard even closer to the west. Both lay about 300 feet south of the line of Mariposa Street. Another house stood about 100 feet south of Mariposa and 100 west of Tennessee.

The proposed excavation in this sensitive area appears in all places to reach or cut deeply into the original surface level.

Mariposa Street to Minnesota and the Shore of Mission Bay. The route along Mariposa Street to Minnesota and along the line of Minnesota Street approximately 200 feet northward to the original shoreline of Mission Bay crosses filled

land. The 1857 map shows a house southeast of the intersection of Tennessee and Minnesota. The crest of a small rise about 100 feet west of Tennessee Street has been cut away.

The area of greatest prehistoric sensitivity in this area appears to be the 200-foot section of the Mariposa Street alignment from the edge of the original marsh at Minnesota Street eastward.

HISTORICAL SETTING

The historical development of the Potrero and Mission Bay area of the Northern Bayside facilities was both late and slow as compared to what has been called the "instant city" of San Francisco. The village of Yerba Buena grew quite naturally around a protected cove, between Telegraph Hill and Rincon Point, an excellent anchorage for ships and the landing of cargo. But Mission Bay was too shallow for ocean trade and surrounded by extensive marshes and tidal sloughs. The isolation of the Potrero in 1852 can be seen on Map 1C. It was not until Mission Bay was spanned by Long Bridge in 1865 that development began in earnest, and even then industries were built where there was direct access to deep water on the bay shore. This left tracts of inland areas relatively undeveloped until the 20th century. Map 2 of the entire San Francisco Peninsula in 1869 shows Long Bridge extended not only to the Potrero but south to Hunters Point. A comparison of the two maps shows the density of San Francisco in the north as compared to the scatter of populated areas to the south. This is a pattern that has persisted and is reflected in land values even today.

The Spanish-Mexican and Early American Era (1776-1852)

The location of the original Mission San Francisco de Asis (Dolores) stemmed from the availability of fresh water of the Mission Creek watershed and suitability to cultivation of the lands immediately adjacent. The selection of the Mission site had been partly dictated by the need to be reasonably close to the natural Presidio and fort location at the Golden Gate. The Mission was the nearest site to the fort that appeared to have any promise of agriculturally supporting itself. The location was hardly ideal as an agricultural community—northern San Mateo county offered much better sites—but the Mission site was the best

to be found within a few miles of the Presidio. Bancroft quotes from Father Font's description of Anza's exploration, "There was a tract of irrigable land, and a flowing spring, or **ojo de aqua**, which would easily supply the required water. Anza found some well disposed natives also, and he came back. . .very much pleased with the result of his day's search" (Bancroft 1884: v.1, 283).

"A church fifty-four feet long and a house of thirty by fifteen feet, all of wood, plastered with clay, and roofed with tules, were finished and the day of Saint Francis, October 4th, was the time set for the rites of foundation. . .Moraga arrived. . .and on October 9th (1776) the **solmen funcion** was celebrated in the presence of all who had assisted" (**Ibid:** 292).

The Mission Dolores was separated from the Potrero Point area by the swamps of lower Mission Creek and the lofty and barren Potrero Hill. It was a mile and third from the Mission proper to the mouth of Mission Creek. Navigation by small boat or Indian tule canoe of about a mile up Mission Creek would bring a traveler within a quarter of a mile of the Mission.

The U.S. Coast Survey manuscript topographic map of 1852 (Map 9) shows the entire area of the proposed facilities unaltered by any identifiable man-made structures, grading or filling activities, or even fence lines or other cartographic evidence of agricultural use. The area at this time was part of the "Potrero Nuevo," as it had been during the Spanish-Mexican period (1776-1846). The name distinguished this eastward-projecting land mass situated between Mission Bay (to the north) and the Islais Creek estuary (to the south) from the "Potrero Viejo" (Old Grazing Lands) of the Mission Dolores. While the Potrero Viejo was granted to Jose Bernal in 1839, together with other lands in the Islais Creek watershed, the "New" Potrero apparently was an area of comparatively marginal value even as grazing land, particularly the area of the proposed facilities locations between Potrero Hill and the Bay.

A fuller discussion of the Bernal Rancho may be found in the earlier chapter on the Sunnydale and Hunters Point sewer construction routes with an even more detailed account in the author's survey on the Southeast Treatment Plant, **Rincon de las Salinas Potrero y Viejo—Portrait of a Vanished Corner.**

An interim report on a proposed Army Street route connection for the Crosstown Tunnel did locate "the old stone wall placed by the Jesuits" in a site converted to use as a city park between San Bruno and Potrero Avenue, and south of the end of the line of Utah Street. A second stone wall, presumably

from the same early period "that marked the northern boundary of the Bernal Rancho, would appear to lie on the line of the now vanished Serpentine Avenue, 50 to 100 feet north of Army Street" (Olmsted 1980:114-115). These potential archaeological sites are mentioned to clarify that they are well away from the construction of the Northern Bayside Facilities as presently proposed.

Research for the reports cited above and the survey by Wirth Associates, **Potrero 7: Phase I,** have supported the findings of this study that there is no record of any adobe structures or other structures from the Spanish-Mexican and early American settlement area near the proposed construction for the Islais Creek Transport/Storage, Soule Pump Station and Reservoir, Channel-Islais Transport, or the Mariposa Facilities in the Northern Bayside Facilities area.

The Gold Rush and American Settlement (1852-1857)

The isolation of the Potrero is emphasized by the nature of the first industries to be located there—the powder works. An early San Francisco ordinance forbade the storage of dangerous powder within the limits of town (Wirth 1979: 295). Research on the storeship **Dryade** revealed that Gibbon and Lammot of San Francisco had advised Du Pont & Company on February 28, 1853, that ". . .we have bought a good tight storeship capable of storing 400 tons for $1500. . .and could sell her again tomorrow for $2000 if we wished." And in another letter of September 15, 1854, the correspondents wrote that the **Dryade** was moored "some two miles from town, where, in the winter the wind blows very heavily and renders it impossible to load the boat without wetting the powder. . ." (Ibid.). It may well be that the **Dryade** was moored in Mission Bay, or perhaps off Potrero Point. The powder works appear on the Coast Survey Map of 1857 on the southern tip of Potrero Point, called Point San Quentin on that map (Map 10).

The powder works of the mid-1850's were both isolated and substantial. They were two-story brick structures, measuring fifty feet long by thirty feet. The superstructure's walls were of brick and were 12 inches thick "carried up thirteen feet from top of foundation. . .with floors and rafters of heavy redwood" (Wirth 1979: A-4). The deep-water wharves enabled them to load their dangerous cargo from eastern ships. The black explosive powder was used in blasting away some of San Francisco's more famous hills, such as Telegraph Hill, Irish Hill (in

the Potrero), and wherever construction required the cutting away of rock obstructions. It was also purchased by the army for use at the Presidio and other installations. Hittell writes:

> The miners were resistant to the use of dynamite (called also giant powder), which was made in California soon after its invention by Nobel, but did not begin to attract general attention until 1871. The miners in those towns where they organized in unions for the maintenance of their wages, as at Grass Valley and Virginia City, determined to resist its introduction. Their pretext was that the fumes from its explosion were unwholesome; the real reasons were that the dynamite needed a smaller drill hole, and its use implied that one man could do the drilling whereas 2 were necessary for black powder. Not only would the single handdrill, with dynamite, do as much work as a double hand-drill, with black powder, but the drifts for one man would not be so large as for two. The miners feared, therefore, that the introduction of the dynamite would throw half of them out of employment, and then reduce the wages of the remainder.
>
> The mine-owners, on the other hand, determined that they must have the dynamite. There was no difficulty in finding men willing to work with it, but they were threatened with all those outrages to which men are exposed whenever they violate trade-union rules. The most serious troubles occurred at Grass Valley, where several independent miners, who used the dynamite, were cruelly beaten, and one was shot. . . Threats were made that the buildings of the mines where dynamite was used, should be burned, and the local company of the National Guard Militias was ordered under arms. . . In smaller towns, where there were not enough miners to maintain a combination, the dynamite was received with so much favor, and the newspaper press was so emphatic in recommending it for general use, that the miners at Grass Valley and Virgina City became ashamed of their opposition, and gradually accepted the single hand-drill and its explosive. Now there is no objection to them anywhere (Hittell 1882: 708).

Powder magazines were moved southward as the population increased. By 1869 the Coast Survey shows a wharf on the line of 25th Street that is crossed by the proposed Channel/Islais Transport. This wharf has been identified as the wharf for a powder magazine on Allardt's map of 1869. A transect of the 25th Street wharf would not be expected to reveal information or artifacts of importance.

The other early industrial site of the Potrero was the Tubbs Cordage Company works which can be found on the 1857 map, south of Point San Quentin as a dark diagonal line labeled "rope walk" that passes across a marsh area and terminates in a wharf. It was a one-story roofed wooden shed 35 feet high and 1,000 feet long. The rope walk was used by laborers who twisted strands of

yarn (made from hemp and abaca fibers) into ropes as they walked backwards in the ropewalk. Cars running on tracks ("formers") later replaced men to lay ropes in the ropewalks.

According to the research carried out by Wirth Associates, Alfred Tubbs arrived in San Francisco in 1850 and established a ship chandlery with a Captain Folger. In 1853, his brother Hiram joined him, and in 1854 they formed a cordage company to meet the demand of both shipping and the mines for rope. In 1856, machinery was shipped from the east with the help of capital from Flint, Peabody and Company. Ropemakers and mechanics arrived in March or April of 1856 and according to the **Mining and Scientific Press**, the power for the plant was provided by a 150-horsepower Corliss steam engine. The first rope was produced July 23, 1856, an event duly celebrated in the **Alta California** (Wirth 1979: A-6-7).

Langley's chronicle of the year 1859 noted:

> The consumption of raw materials is about 4,000 pounds of hemp and 3,000 pounds of oakum per day, which is obtained from Manila, and arrangements have been completed for regular shipments thereof, until California shall be able to furnish the same products from her own soil. The enterprising proprietors of this establishment are not engaged in the manufacture of cordage from California grown hemp. The specimens exhibited in the last Mechanics' Fair will favorably compare with the imported article. They have also made arrangements for the importation of seed, for the production in this state of a sufficient quantity of raw material to supply the demands for home consumption (Langley 1859: 39).

As an historical note, this was undoubtedly the first **Cannabis satia** to be imported and raised in California.

The rope works continued to prosper. It expanded to include the Portland Cordage Company during the 1890's and began selling rope throughout Latin America.

An idea of the changes in both the plant and the industrial setting may be gained by studying Plates 45, 46, and 47. The first 1857 view of the ropewalk from this San Francisco Maritime Museum daguerrotype gives a murky impression of the modest beginning of a Potrero industry, but a clear impression of the isolated and barren countryside that we see on the 1857 map. Plate 46 shows the prosperous expansion of the company in about 1880 when the first introduced trees had grown to a modest shady garden and new staked trees outlined the path of the rope walk. Plate 47 shows a typical evolution of an industrial plant

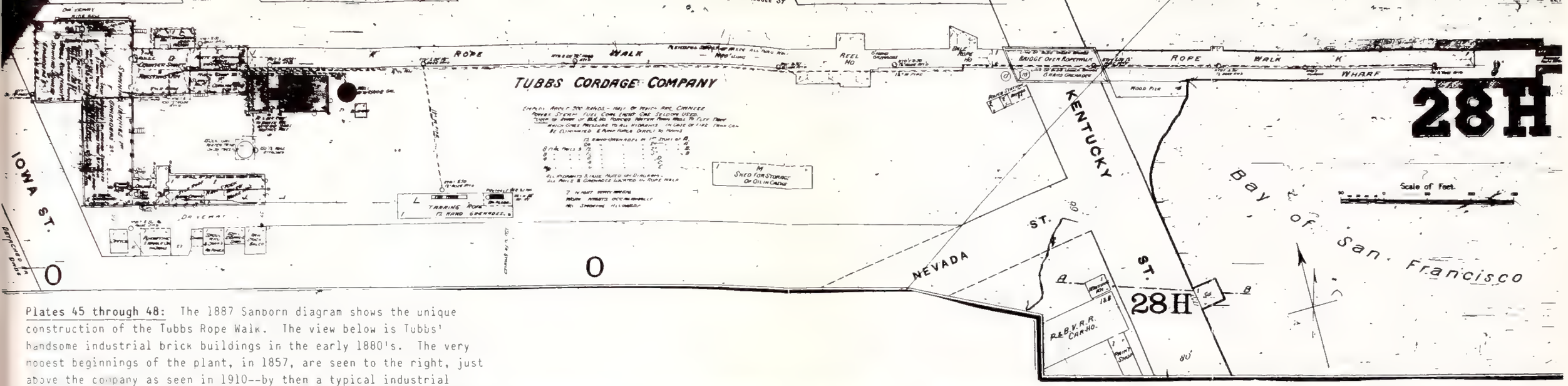
in the Potrero area. By 1910 the trees were gone and any pride in the physical appearance of the industrial site was certainly lost behind the large gasholder. The Sanborn Map seen in Plate 48 is dated 1887 and gives a clear idea of how the plant functioned at that time.

Wirth Associates, in anticipation of the projected P.G.&E. tramsmission line, put down a trench to test for the buried ropewalk. The trench was on Third Street, but because of the shallowness of the proposed P.G. and E. excavation the archaeological test trench was not deep enough to ascertain with certainty the existence, or not, of significant remains from the ropewalk (Wirth 1979: A-6).A-6). By 1869 the ropewalk was extended across the line of Illinois Street. The Mariposa transport on Illinois Street is not anticipated to reach a depth beyond structural remains of the ropewalk.

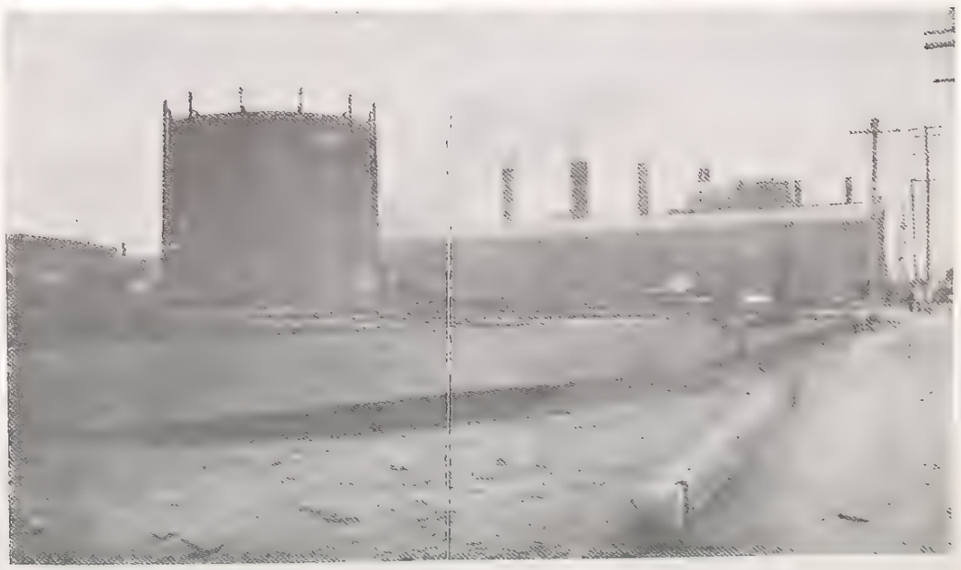
The Channel/Islais transport is proposed to a depth of about 17 feet and would impact any remains from this very early and unusual structure at approximately 23rd and Tennessee streets. The Tubbs Company office, as well as carts that were used in laying the rope, is now preserved on the Hyde Street Pier in the Golden Gate National Recreation Area. Any portion of the original ropewalk would be a valuable addition to this collection. Beyond this, information concerning the details of the structure that are not available from documentary sources could aid, for example, in the construction of exhibits in conjunction with the existing artifacts.

Some Company buildings from the 1880 brick plant still exist to the west of Tennessee Street, north of 23rd Street. However, there would be no impact anticipated from the proposed Channel-Islais Transport excavation, as these early brick buildings are over 50 feet west of the proposed construction in the line of Tennessee Street. The industrial site would probably meet the criteria for the National Register of Historic Places, even though only scattered brick buildings are extant from the plant as it existed in 1880.

A careful study of the 1857 Coast Survey Map (10) shows that the proposed sewer excavation for the Northern Bayside facilities in this area does not impact any known early structures. It would appear that Tennessee Street cuts through the fenced backyard of a small farmhouse south of the line of Marisposa Street and west of Tennessee. The probability of remains from this early farmhouse would be doubtful, given the distance from the proposed sewer excavation.



Plates 45 through 48: The 1887 Sanborn diagram shows the unique construction of the Tubbs Rope Walk. The view below is Tubbs' handsome industrial brick buildings in the early 1880's. The very modest beginnings of the plant, in 1857, are seen to the right, just above the company as seen in 1910--by then a typical industrial plant of south San Francisco. [Bancroft Library, S.F. Maritime Museum]



19th Century Development of the Potrero and Mission Bay (1858 - 1882)

The Wackenruder Map of 1861 (Map 3) shows the streets of the Potrero all laid out over the Potrero Nuevo and the tideland mudflat of Mission Bay crisscrossed with the lines of Townsend, King, Berry, and Channel streets. But in 1861, Wackenruder's map (compiled from official surveys) anticipated the future by nearly a decade. The streets of the Potrero existed only on maps and those of Steamboat Point crossed under the muddy waters of Mission Bay in 1861.

The importance of the Potrero as an industrial site was anticipated by John North, San Francisco's most noted shipbuilder, who built the **Yosemite,** in 1862, at his new yard across from Steamboat Point on the Potrero. The **Yosemite** was only slightly less elaborate than the **Chrysopolis,** which he had completed earlier at a cost of about $200,000.

One of the first jobs done by North at the Potrero was the rebuilding of the steamer **Brother Jonathan.** He laid a wooden ways and set a gang of 150 Chinese to hauling her out, but the cable parted, the Chinese going one way and the **Brother Jonathan** the other; about two months later North applied for a franchise for the construction of a regular marine railway. In 1863, North constructed a second **Colorado,** which may have been a new hull for the old machinery (Mills 1941: 255-174). In the same year he built the schooners **Euphemia** and **George Lewis,** two barges and the stern-wheeler **Mojave** (Olmsted 1957:15).

Among the smaller vessels constructed at the Potrero yards were two steamers, one for the Colorado River, the other the sternwheeler **Reform;** three barges, two of them for the Colorado; and the brig **Thomas,** built in 1867, and possibly the last vessel he built at the Potrero (Olmsted **Ibid.**).

Steamboat Point property was becoming too valuable, and North's move to the Potrero where he had deep water frontage was to be followed by other boatbuilders, Henry Owens and Patrick Tiernan. North's yard at the Potrero was located at the foot of Sierra Street (at what would be the line of 21st Street), four blocks east of Illinois Street.

Patrick Henry Tiernan, who built many of the earliest and largest of San Francisco Bay's double-ended ferryboats, located at the foot of 17th Street, on the east side of present-day Third Street. This site was later occupied by the Dickie Brothers, builders of the largest class of ocean-going vessels constructed

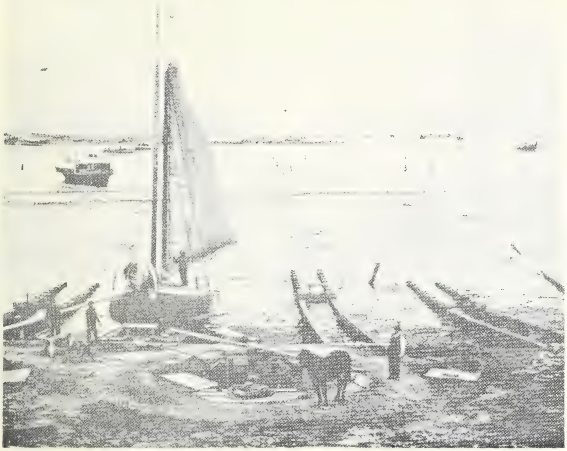
at San Francisco prior to the development of the Union Iron Works in the mid-1800's. Like the North yard, the Tiernan location is distant from the proposed facilities under consideration.

The third of the early Potrero shipyards, that of Henry Owens, was immediately adjacent to a portion of the proposed Mariposa Transport/Storage facilities, the 20th Street Transport/Storage sewer. Tidelands survey maps by George Allardt of 1868 and 1869 show the shoreline at Owens' yard about 200 feet south of the 20th street sewer alignment, with the easternmost and longest of the ways extending northward to what appears to be the westernmost extremity of the 20th Street Transport/storage alignment.

General views of Owens' yard are seen in Plates 49, 50, and 51. The two photographs showing the ways all occupied were made by Eadweard Muybridge. The occasion of the pair of photographs was certainly the activity a day or two before a Fourth of July regatta in the early 1870's. That was the date of the annual Master Mariner's Regatta of the San Francisco Bay workboats, and the vessel with the flags at her masthead is the huge scow sloop **P. M. Randall**, flying the "Champion" banner she had won in the race of 1870. The four smaller vessels are yachts of the San Francisco Yacht Club. All are having their bottoms scrubbed and freshly painted in preparation for the race.

In the background of both photographs, about 600 feet westward along the shoreline, are the two smaller boatyards of more special interest to us because both are transected by the Illinois Street alignment of the proposed Mariposa facilities.

Plate 51 illustrates the major possibility of impact on a National Register quality cultural resource in excavation of the 20th Street sewer—an abandoned hulk. Filling of the shoreline to 20th Street was underway in 1882, as is most clearly seen in Map 12. The tidal area of Owens' yard and the whole length of the 20th Street sewer alignment was filled to provide more land for the great shipyard of the Union Iron Works, which launched the first steel ocean steamer built on the West Coast in April, 1885. Plate 51 shows a laid-up sidewheel steamer on the mud line at low tide about on the line of 20th Street (though west of the proposed construction). As experience with the whaler **Lydia** showed, filling around and over a hulk could be less of a problem than removing her. The tideland to the east of Owen's yard does not appear from maps of the 1870's to have had any wharves or activities along the length of the proposed sewer, and it was a logical spot to lay up an old vessel at high tide.



Plates 49 and 50: Muybridge views of Henry Owen's boatyard... The P.M. Randall flies the Master Mariner's Regatta Champion Banner in the early 1870's. Owen's yard was adjacent to the 20th Street Transport/storage construction. Plate 51 (above): Another view of Owen's yard showing hulks in the background. This suggests that sunken vessels could be found on Mariposa Street or at the pump station sites east of Third. [National Maritime Museum at San Francisco]

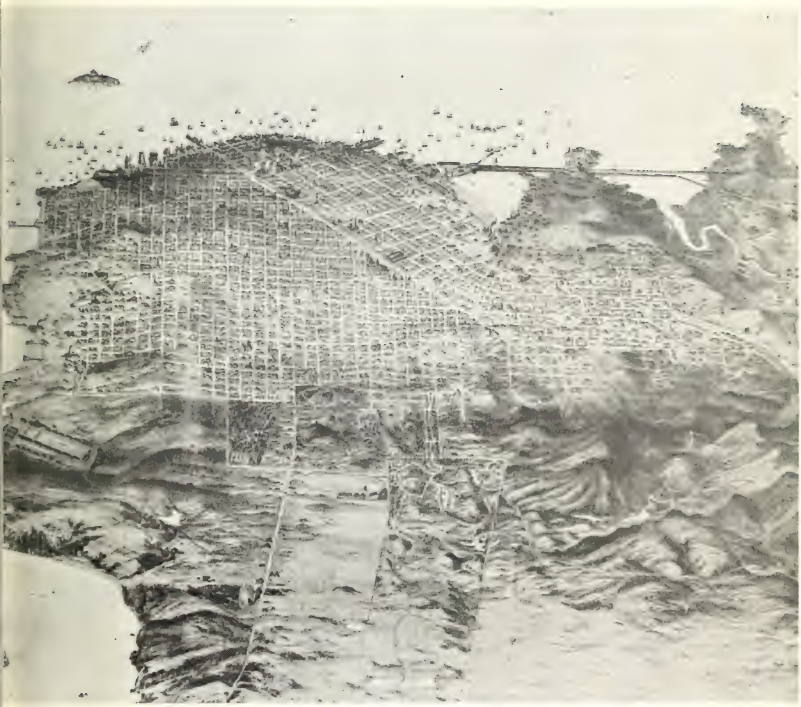


Plate 52: Birdseye View of Long Bridge completed to the Potrero...George Goddard made this drawing on stone as if he was in a balloon, high over the Pacific, looking to the east. Drawn in 1868, the view shows the enclosure of Mission Bay and Islais Creek by Long Bridge and its extension. [Bancroft Library]

The Opening of Long Bridge. Anticipation of the inevitable coming of the transcontinental railroad (1869) that would link California and San Francisco with the rest of the United States had bouyed speculative expansion in the city. There was new capital available from the mining boom in the Comstock. Demand for goods in short supply from the Civil War did more to boost prosperity than to dampen optimism about the westward expansion of the country. That San Francisco would become the manufacturing capital of the west, second only to New York, was a fact to be counted on—estimates differed only as to when the boom would come or how large it would be. The only block to the development of the Potrero, with its cheap land and deep water frontage on the east, was its isolation. The solution was Long Bridge.

Piles were driven for the bridge in February of 1865 (Langley 1866: 14) and the Potrero connection was completed by 1867. The birdseye view of 1868 (Plate 52) shows Long Bridge completed and the development of the Potrero at that time. The first extension of the bridge was out the present line of Fourth Street, across the shallow mudflats of Mission Bay to Kentucky Street (modern Third Street), across the entrance to the Islais estuary and south towards Hunters Point. Long Bridge was constructed to carry workers to Potrero industries, to encourage the sale of homestead association lots in the Hunters Point area, and to accommodate the wagon traffic that was associated with the buildup of South San Francisco. The urban mass transit of the day was by horsecar, with teams of horses pulling cars which were not unlike San Francisco's extant cable cars in appearance. In the case of Long Bridge, the horse drawn streetcars were pulled along double tracks on the Potrero and Bayview Railroad.

By 1866 the Pacific Rolling Mills had opened at the foot of 20th Street. Hittell writes:

> The Pacific Rolling-Mill Company was organized May 10, 1866, the original corporators being William Alvord, John Bensley, D. O. Mills, B. P. Bruner, and A. Hayward. They complied with the conditions of an act of an legislature, passed in April of the same year, granting a tract of the submerged land in front of Potrero Point, the conditions being that they should pay the price to be fixed by the Tide Land Commissioners, at not more than $300 an acre for the land, and should also erect a rolling-mill. This tract, with some upland previously purchased, gave sufficient ground for their works, the construction of which was commenced without delay. In July, 1868, the buildings, wharves, and machinery were all complete and in that month the first bar of iron was rolled. The capacity was then 3,000 tons a year (Hittell 1882: 682).

The submerged tidelands and the filling operation can be seen on the 1869 Coast Survey (Map 11). The square area of fill just north of the legend "Point San Quentin" is the large parcel of land being made ready for some of San Francisco's leading capitalists—at the bargin price of $300 per submerged acre—who were to build the big rolling mill. An idea of the extensiveness of the works can be seen in Plate 53, an 1887 Sanborn map.

The main product of the rolling mill was steel and iron rails for the enormous expansion of this industry, but they also converted pig-iron into wrought iron, made steam-hammered parts of locomotives, marine and engine forgings, manufactured bolts, nuts, railroad and ship spikes, track-nails, washers, and coil chains. By 1882, when Hittell was describing their very large operation, they had "Eighteen reverbatory furnaces in use, capable of heating 130 tons of iron a day. . .the mill runs day and night. From 430 to 450 men are employed in the different shifts. The rates of wages are 25 percent higher than the Eastern States. Common laborers receive from $1.75 to $2 per day; puddlers, rollers, and the mill-men are paid by the ton, and make about $4 a day; and those in charge of a gang of men receive $8 per day" (Hittell 1882: 683).

The common laborers, puddlers, rollers, mill-men and some of their foremen lived in the boarding houses and flats that can be seen in Plate 54 of Irish Hill. This remarkable view, taken about 1890, shows only a part of the growth of heavy industry on the Potrero. The big four-masted ships in the distance brought in coal, mostly from Australia, "to the extent of about 15,000 tons a year, consumed at the Pacific Rolling Mills" (**Ibid.**). To left of the Pacific Rolling Mills is the Atlas Iron Works, just north of 20th Street. The belching smoke stack and its adjoining large 3- and 4-story brick industrial buildings were part of the much larger Union Iron Works that is out of the view to the left. Illinois Street cuts in front of the Nevada House and the Monterey House. These lodging houses faced the 2- and 3-story workingmens' flats with the washing strung out in dismal backyards over fences and lines. The protrusions of rock that jut out, here and there, are all that was left of 100-foot serpentine hill. It was cut through to connect Third Street, Illinois and Tennessee streets with Long Bridge. Thousands of cubic yards of rock were blasted away in this very large rearrangement of the natural site.

It should be mentioned in passing that the railroad did not bring the prosperity to San Francisco that had been anticipated in the beginning of this

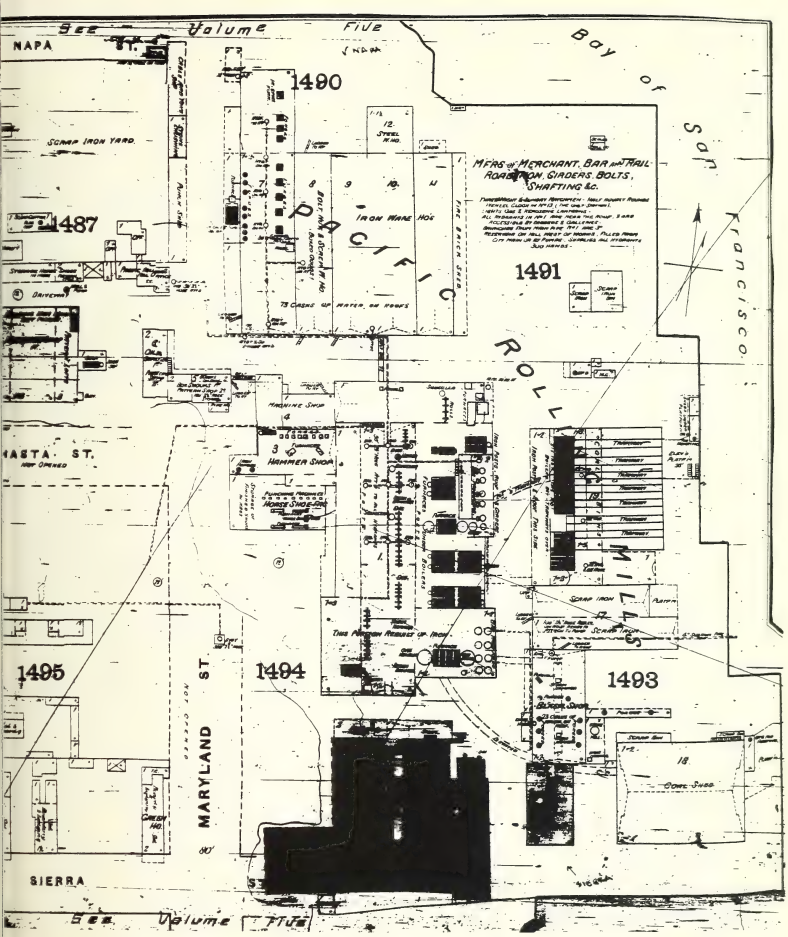
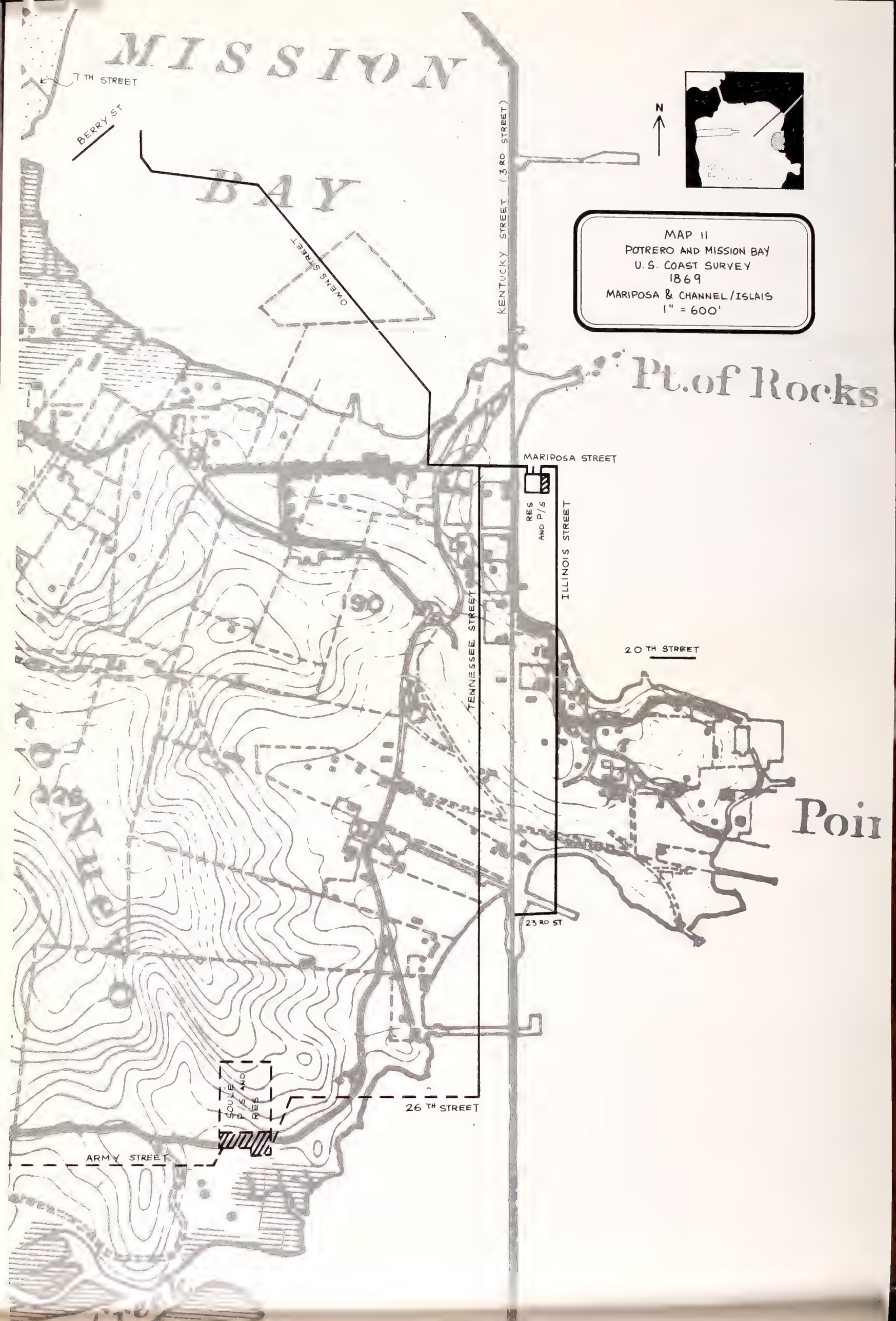


Plate 53: The Pacific Rolling Mill in 1887, Sanborn Map...


MISSION
BAY
7TH STREET
BERRY ST
OWENS STREET
KENTUCKY STREET (3RD STREET)
N
MAP 11
POTRERO AND MISSION BAY
U.S. COAST SURVEY
1869
MARIPOSA & CHANNEL/ISLAIS
1" = 600'
Pt. of Rocks
MARIPOSA STREET
RES AND P/S
ILLINOIS STREET
TENNESSEE STREET
20TH STREET
Poin
23RD ST.
26TH STREET
SOUTH SAN MATEO RES
ARMY STREET

"Silver Age," as Hittell had called it. Ashbury Harpending, a knowledgeable inside operator, described the letdown correctly when he wrote:

> For months we had been living in a fool's paradise over the boom that would follow the driving of the last spike. That day came, but what a disappointment! It may have seemed all right to the proletariat, but for the business people it spelled ruin. It brought in an avalanche of goods from Chicago and St. Louis, at prices which our local men could not meet. Many firms failed, some consolidated, some retired from business. Rents dropped like lead, real estate values shriveled up to nothing. It was ten years before those values recovered to the level of 1869 (Harpending 1915: 143).

But the optimism that Hittell wrote about, understood and embodied in his own writing prevailed over the depression that followed the over-expansion in anticipation of the railroad. His **History of San Francisco, and Incidentally of California** was purposefully named and written in 1877-78. Here is how he characterized the period that saw the influx of industry into the Potrero and the opening up of South San Francisco:

> The last period in the history of San Francisco, from 1860 to 1878, is here called 'the Silver Era,' because of the great influence exerted on the city's business by the yield of bullion from the argentiferous deposits of Nevada. The increase of grain fields, orchards, vineyards, dairies, sheep, irrigation ditches, manufactures, and railroads, the connection by an iron track with the Atlantic slope, the acquisition and diffusion of knowledge about the scenery, salubrity and climate of the state, and the general recognition of San Francisco as one of the chief centers of luxurious enjoyment contributed to give it a prosperity higher in many respects than it had during the flush times of placer mining.
>
> We have thus traced the growth of San Francisco, this metropolitan prodigy, this young municipal giant, from its small and rude beginnings, through a brief career, to its present condition of magnitude and magnificence, through a record without its like elsewhere in the variety, multitude and startling character of its impressive incidents. The city, as it now stands, is an embodiment of the highest enlightment of our time, one of the most brilliant products and greatest triumphs of the industrial art, commerce, wealth and intelligence of the nineteenth century, and a splendid illustration of the popular energy developed under the free political institutions of the United States—institutions which, seriously defective as they are in some important respects, have yet given a stimulus to enterprise which no people under a despotic government have ever approached (Hittell 1878: 481).

The Industrial and Residential Potrero (1883-1919)

The Coast Survey Map that was published in 1884, based on information surveyed in 1882, shows Potrero Point considerably filled in and built up as compared to

the 1869 survey. Map 12 shows large black structures on the point: the square Atlas Iron Works to the north, the large irregular rectangle of the Pacific Rolling Mill just south. Around the knob of Irish Hill, to the south, are the twin gas holders of the gas works, and further south are the big brick buildings of the Western Sugar Refinery.

The biggest addition that was under construction was the Union Iron Works, which moved out to the Potrero in 1883. Originally founded by Peter Donahue in 1849, at the northeast corner of First and Mission, the Union Iron Works built the heavy machinery that was extensively used in mining operations. But by the 1880's the move to the Potrero industrial district marked a shift to the manufacture of steel ships. Plate 55, taken in 1895, gives some idea of the interior areas of the Union Iron Works and shows the very large marine ways for shipbuilding and repair work. An engineering elevation was made of all of the main buildings in 1905, and is shown in Plate 56. The Sanborn Maps numbered 591 through 594 give an accurate, detailed graphic description of the layout of this very large industrial site that can be located in relationship to the rest of the Potrero industries on Map 13. By this date the Union Iron Works reached as far north as 18th Street and nearly as far south as 22nd Street.

The impetus of two World Wars kept the demand for ship production high, insuring the prosperity of the Potrero at the cost of the lives of her sons. In 1918, the bands played and flags waved as speakers exhorted the workers of the Union Iron Works to greater and greater production (Plate 58). Along the old brick walls of the early Union Iron Works of the 1880's, torpedo tubes are stacked from the ground to above the arched windows of the second floor. The brick buildings along the line of 20th Street, seen in Plate 58, still stand as part of the Bethlehem Shipyard.

The Union Iron Works of the Potrero was the inspiration of the Scott brothers rather than the Donahues. Just as the great Pacific Mail Steamship Company works at Benicia had been the largest industrial establishment in Gold Rush California, Irving M. Scott's Union Iron Works became the largest manufacturing plant of its times on the Pacific Coast. The first vessel built by the works was the collier **Arago**, a steamer of 800 tons launched in April, 1885. The building of steel merchant vessels on the Pacific Coast would never have supported the giant plant that the Union Iron Works was to become by the turn of the century. It was the "New Navy"--the beginnings of a fleet of genuinely seagoing (not merely coastal defence) steel steamships--that the Scotts' must have had their eye on.

Plate 54: Irish Hill in about 1890...The Nevada House and the Monterey House were the typical boarding houses for the workers in the Atlas Iron Works and Pacific Rolling Mills. The ramshackled back-entrances were strung with laundry above the outcroppings of rock. [Bancroft Library]

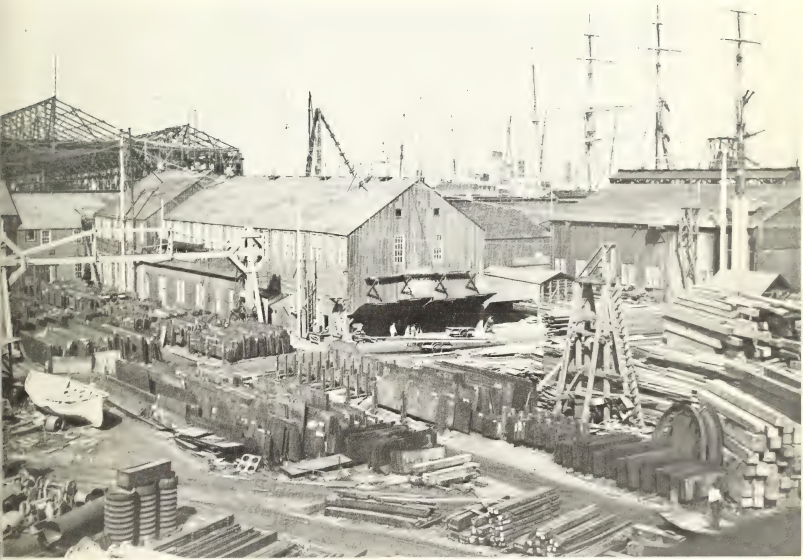


Plate 55: The Union Iron Works in full operation and still expanding, 1895... The biggest employer on the Potrero, the Union Iron Works produced the steel ships for both the United States Navy and the merchant marine. [National Maritime Museum at San Francisco]

From the cruisers of the late 1880's, like the **Charleston** and **San Francisco**, the Union Iron Works went on to building battleships. The two most celebrated warships of the victories over the small Spanish fleets in Cuba and the Philippines—the cruiser **Olympia** and the battleship **Oregon**—were built by the Union Iron Works. In the years before and immediately after the turn of the century, the Union Iron Works was sending down its ways battleships and armored cruisers as large as those being built by any yard in the world. But it was a preferential bid-price formula to encourage shipbuilding on the West Coast that gave the Union Iron Works a healthy share of the contracts that created the Great White Fleet that Theodore Roosevelt could send around the world as a demonstration of American might. The Union Iron Works could not compete with eastern yards without a bit of a subsidy. Bethlehem Shipbuilding bought control of the works in 1905, but except for the brief but insatiable demands created by World War I and World War II, the great shipbuilding days of the Union Iron Works were almost over by that time.

The **San Francisco Examiner** ran a Sunday feature story on the Potrero in 1889 that looks back at the area's physical development in this particular period of heavy industrial building:

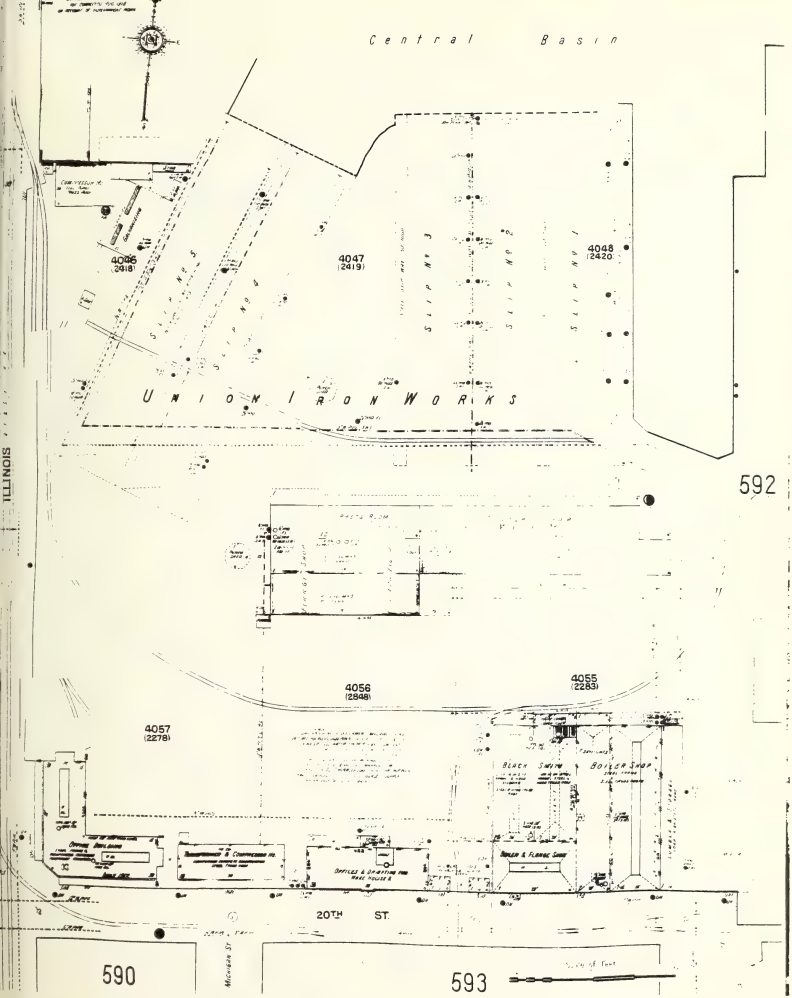
> "There is no portion of San Francisco where the work of 'the mighty hand of man' is shown so plainly, perhaps, as in that district known as the Potrero. Elsewhere within the city's boundaries vast changes have been brought about. . .work done was strictly that of development. But here it is far different. The pioneers of progress at the Potrero, have had first actually to create the very ground upon which have been erected those vast establishments that have given to the district its name and fame as the very foremost center of mechanical industry and wealth-producing enterprises upon the Coast.
>
> Where the massive factories now stand solidly along the level shore, which bristles with its rows of piers, was once but a choice between precipitous hillsides, along which a goat could scarcely make his way, and oozy foul-smelling marshes, a mere glance at which would seem sufficient to have utterly discouraged the most progressive combination of energy and capital.
>
> Great stretches of craggy bluffs have disappeared. Vast masses of rock have been blasted away from the hillsides and thrown upon the marshes. Thousands and thousands of tons sunk into the depths and left no trace, but a time came at last when the vast dumping process had its effect, and the solid earth appeared above the surface. The mountain had perished! That portion it was necessary to remove so that the great manufactories could take root—and with the mountain had gone the marshes. (**San Francisco Examiner** August 11, 1889).

The statement that all of the Potrero land used for heavy industry was "created by the mighty hand of man" is largely true. Irish Hill as seen in the 1890's was all that remained of the much larger "mountain" of serpentine seen on the 1869 map. Plate 59, taken in 1896 (dated by the battleship **Oregon** which appears as a strangely misplaced Alcatraz in the right background), looks back at the industrial Potrero hill from a ship in the bay. A careful examination of the deep and wide cut in the land to the left indicates where 3rd Street was cut directly through the hill. A much smaller deep slot is revealed (with a magnifying glass) that shows the cut made for Illinois Street. The very dirty smokestacks mark the site of the Union Iron Works that are concealed by several large 8-and 9-story brick buildings at the water's edge. These are part of the giant California/Western Sugar Refinery, built between 1881 and 1883 by Claus Spreckels, seen in Plate 59A.

According to Wirth Associates (who did extensive research on this site, anticipating the P.G. & E. plant of Potrero 7), it was the Reciprocity Treaty that allowed Hawaiian low-grade sugars to be imported duty-free in 1876. This, in turn, led the Spreckles brothers to expand their Eighth and Brannan Street operation to the Potrero. The sugar refinery works occupied a 5-block site, bounded by Humboldt Street on the north, the Bay to the south and east, and Louisiana Street on the west. Although the Potrero 7 Pacific Gas and Electric Plant was not built, the Wirth Report on the California/Western Sugar Refinery is an excellent source of historic data on this relatively unknown industrial area. Pages A-8 through A-14 of their Phase I, 1979, overview contain a complete history of these works. The site of the California/Western Sugar Refinery can be seen on Map 13 which is titled, "Map of South San Francisco Showing the Industries in the Vicinity of Islais Creek."

The big gas holders of P.G. & E., successor to the San Francisco Gaslight Company, can be seen in a 1927 view from the Bay, taken in from a close range. To the left are the wharves of the Western Pacific Railroad, part of their railroad ferry operation. The presence of pile drivers indicates that filling of the tidelands was in progress, seen in Plate 59B.

A Workingman's Neighborhood. The view of Irish Hill taken in the 1890's (Plate 54) shows the residential section of the Potrero after much of it had been cut away in 1883-85. The workingmen's lodging houses prevailed along the line of Illinois Street and the smaller shacks and 2- and 3-story flats of the laborers



Plates 57A through 57D: Sanborn Maps of the Union Iron Works, 1919...The extensiveness of the Bethlehem Ship Building Corporation can be studied on these maps. [San Francisco Planning Dept. Archives]

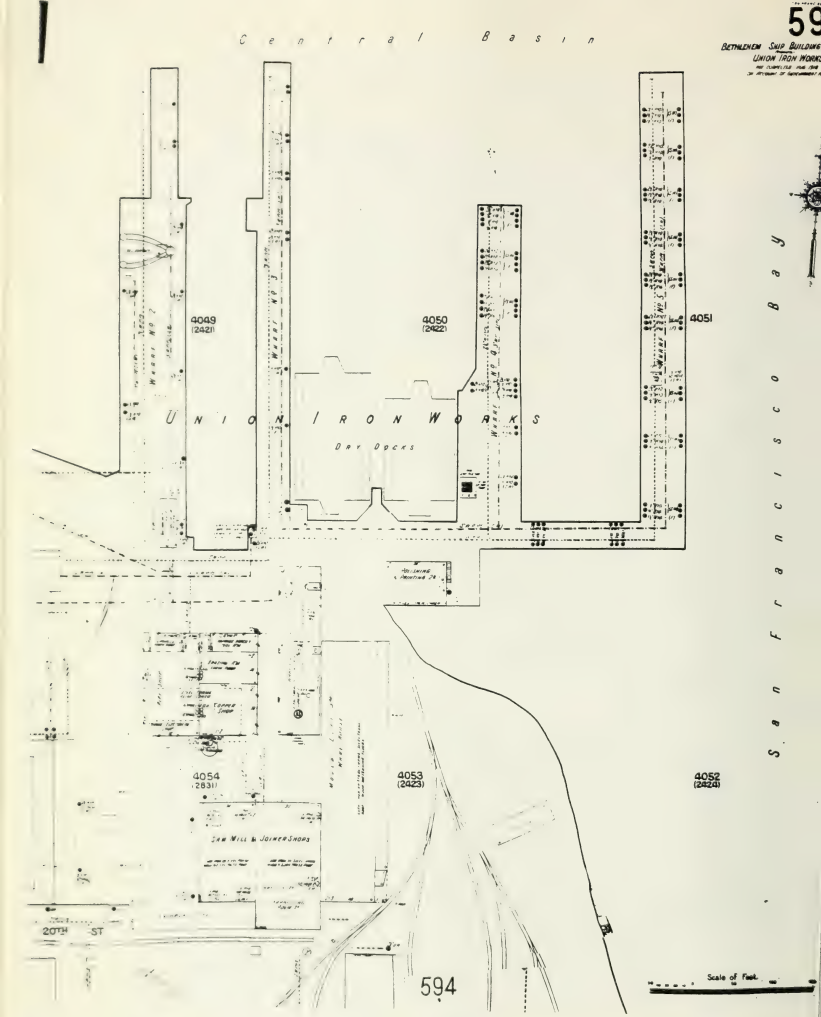


Plate 57B: The big slips were 600 feet long...

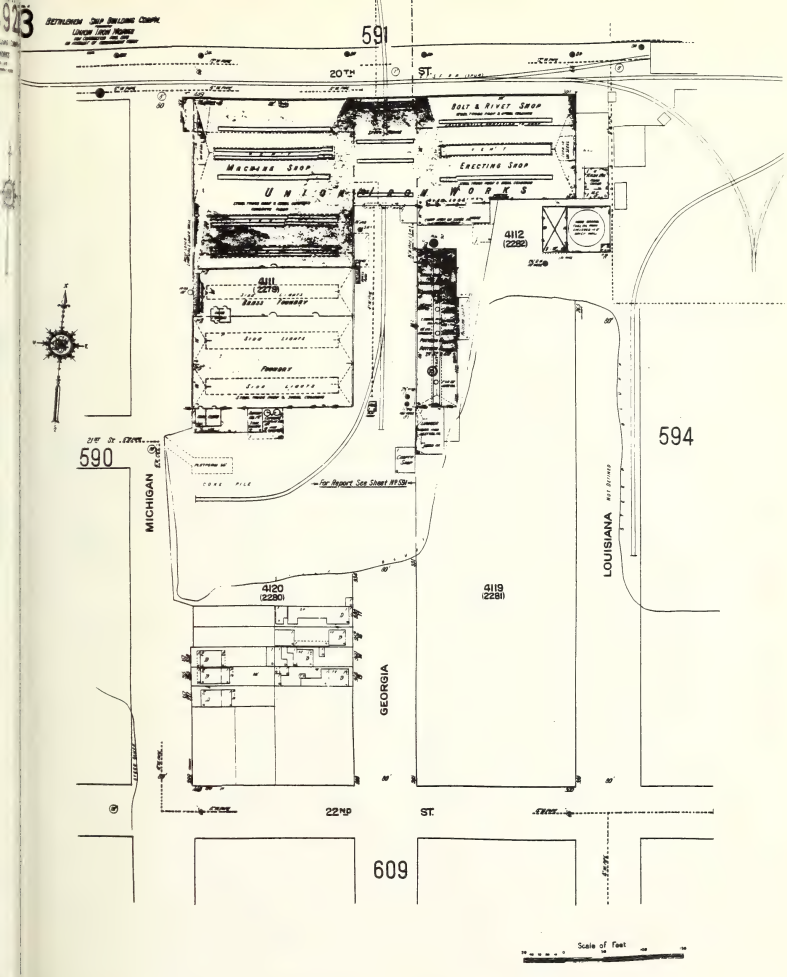


Plate 57C: The 20th Street construction area...

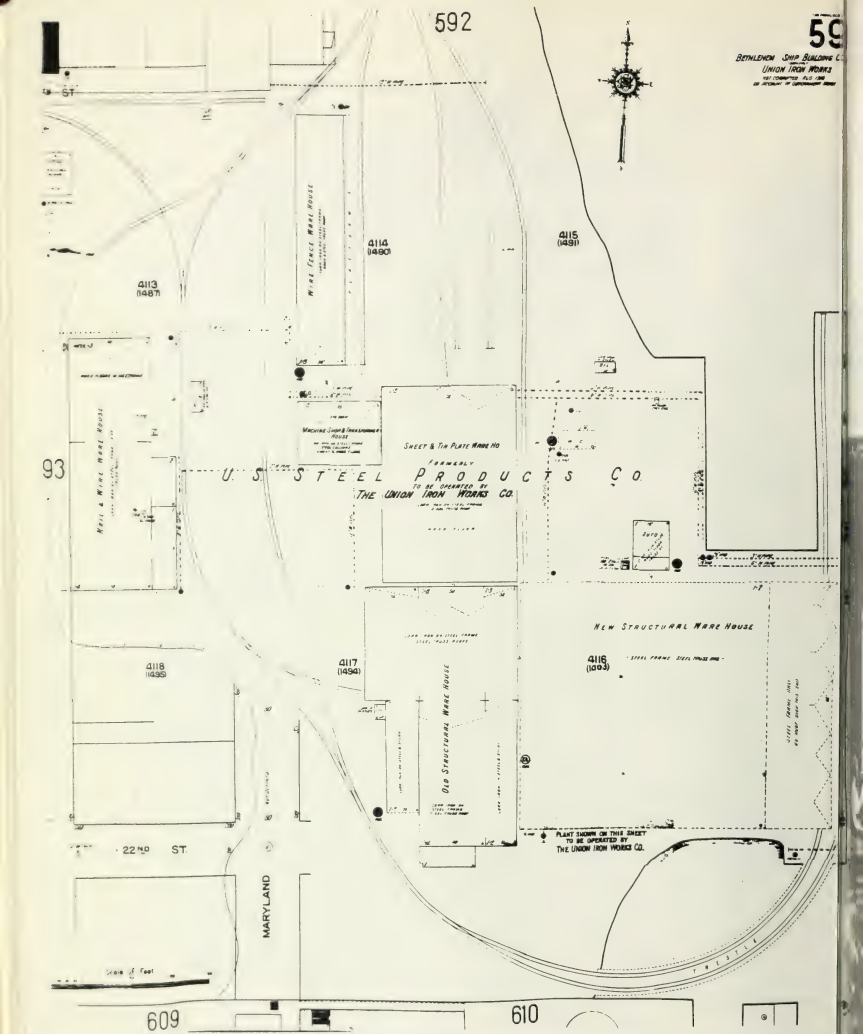


Plate 57D: Most of these brick warehouses are extant

Plate 58: Twentieth Street, 1918... Urging the iron-workers on to help with the war effort, some flags were flying as a band played, and Navy hats dotted the crowd that could hardly be larger. Torpedo tubes are piled high by the wall of the Union Iron Works. [California Historical Society]

Plates 59, 59A, 59B: The Western Sugar Refinery...One of the biggest manufacturing complexes on the Potrero is seen from the bay in 1896, from the land in 1906, and again from the bay in 1927, when the Western Pacific Railroad Ferry slip was built alongside. [Bancroft Library]

can be seen from the back, revealing the outhouses and add-on backyard shanties. Today only a very small remnant of serpentine can be found from this scene. Although the Bethelehem Shipyard retains many of the earlier brick buildings that were part of the Union Iron Works, all of these workingmen's lodging houses and frame dwellings in the view have been replaced by industrial buildings.

We are indebted to Robert O'Brien, who interviewed San Francisco old-timers in the 1940's for his column "Riptides," for an idea of what life was like on Irish Hill. Here he talked to Billy Carr, sheriff's deputy in South San Francisco for 46 years, who was born in 1876 and moved to Irish Hill at the tender age of 18 months:

> In the early eighties it was mostly all hotels on Irish Hill. The Green House, run by Mike Farrell. The White House, run by Hans Rasmussen. Cash's Hotel, run by Jimmy Cole. The San Quentin House, run by Jim Gately. Gately took in the parolees from San Quentin and got them jobs in the rollin' mills at the foot of the hill. There was Paddy Kearns' Hotel, and outside the gashouse was Mike Boyle's steam beer dump. There was the Shasta House, run by James Cole, and McDonald's Hotel.
>
> In them days we never went to Morosco's (A vaudville house between 3rd and 4th on Mission). . .the shows were much better on Irish Hill, where the boys from one hotel would challenge the boys from another hotel and fight all Saturday afternoon in a hayrope ring outside Gateley's Hotel. Then we'd all go in and knock off steam beers for a nickel apiece. Below Irish Hill was the blue muds of Potrero, where King McManus and Jack Welch, the referee and the Congressman's brother, used to run their hotels. Why they'd go out in the street and fight, knee-deep in blue mud, for each other's boarders. Once they met in a beer joint next to Morosco's and fought it out there. King stabbed Jack and later the same day, Gary Welch, Jack's brother, fought McManus' brother, who was called 'The Young Garzoon from Ireland—'
>
> You went up on Irish Hill when you got off work and you never left it until morning. Below it was Dutchman's Flat, where Dutchmen from the old country lived. The next hill, that's Russian Hill now, was Scotch Hill, where the Scotchmen lived. The Irish came from Ireland, with a shaillalah stick and a bag on their shoulder, and a card telling them to go to work for the Pacific Rolling Mill. If there was no work there, they'd go to the gas house. The Dutchmen came with work cards telling them to go to the sugar house. The Scotchmen, all mechanical men, would go to work at the Scott Union Iron Works.
>
> In them days, there was never a street paved. You went through the mud to school. If you wanted to go to Butchertown you walked a plank walk from Twenty-third street to Arthur Avenue. . . . But the war came along, and the Government drove us off Irish Hill. Eight or nine hundred people use to live there (O'Brien 1946: 14).

When Jimmy Carr spent his boyhood on Irish Hill (from 1877 through 1890) he recalled that he climbed 98 wooden steps to get to the top. What he witnessed was the growth of the Potrero industries as we have described them, and he grew up during the great migration of the 1880's and 1890's from Europe to the United States, and incidentally to San Francisco.

For the country as a whole the census reflects Billy Carr's observations. In 1870 there were 4,936,618 immigrants to America from Europe, by 1880 the figure was 5,744,311, by 1890 it was 8,020,608, a figure that remained nearly the same in 1900. The age of these immigrants makes for interesting study. In 1870 (of the total immigrants to the United States) 60.8% were men, mostly from 14 to 40 years of age; by 1880, 62.9% were men, again mostly from 14 to 40 years of age; by 1880, 62.9% were men, again mostly from 15 to 40, and in 1890 and 1900 the same percentages held true. The labor force of Europe was flooding into America, and the transcontinental railroad made it relatively easy for workmen to strike out for California and the higher union wages paid in San Francisco industry (figures from **Historical Statistics of the United States,** 1789-1945: 35-37).

To give some idea of the difference in wages that would have attracted the workmen to San Francisco, and more particularly the industrial Potrero, the following table of daily wages was constructed from Neil Shumsky's thesis, **Tar Flat and Nob Hill: A Social History of Industrial San Francisco During the 1870's.**

	1870		1880	
Occupation	**S.F.**	**N.Y.**	**S.F.**	**N.Y.**
Bricklayers	5.00	3.16	4.00	3.12
Carpenters	3.85	2.88	3.35	3.41
Hod Carriers	3.00	1.96	2.50	2.03
Laborers	2.00	1.76	2.00	1.39
Machinists	3.37	2.27	3.03	2.53
Masons, Stone	5.00	2.89	4.89	2.50
Plumbers	3.86	2.76	3.63	3.39
Teamsters	2.64	1.70	2.68	2.49

Plates 60 and 61: Lonely Survivors of the 1880's on Tennessee Street
...Minor White took these eloquent views on December 28, 1949. Neither house remains today. [California Historical Society]

The phenomena of San Francisco's large working class composed of single men has been commented upon by many local historians. Certainly the sea-faring population tended to be largest and the last group of working class men to live primarily in boarding houses in the South of Market area along the waterfront. (See **San Francisco Waterfront** for a more complete description of this phenomena.) The Potrero Hill workmen, with their work cards directing them to the best place to find their start in the United States, made the transition to married life as soon as their finances made this more attractive lifestyle possible. The Sunday feature writer of 1889 described the change in Irish Hill lifestyle:

> . . .The days of the cliff-dwellers is passing. Many and many scores of modest homes still crown the heights which frown above the great waterside factories, and to which the principal means of access is still long flights of wooden stairs, but it is upon the gentler and more pleasing sites that rows of cottages, in later days erected, are located, and for long stretches of level or slightly rising streets, bordered by broad, tree-shaded sidewalks mark the new Potrero. Originally, it is safe to say, there was not a tree in the vicinity.
>
> . . .The residence portion of the Potrero may be said to be divided like ancient Gaul, into three parts, The 'old town' is that first divided, mentioned as crowning the heights above the waterside factories, and the principal means of gaining access to which are long flights of stairs. Another section is that which has also been referred to as lying to the southwest in the valley next to the cordage factory (**San Francisco Daily Examiner** Ausust 11, 1889).

An examination of the Sanborn Maps of 1887 shows that residences that were "southwest in the valley next to the cordage factory" refers to houses on Tennessee and Minnesota streets. A fine series of views of this area were taken by Minor White in 1949, and we have included Plates 60 and 61 showing the then surviving Tennessee Street houses of the late 1870's and 1880's. In Plate 60 the house was set up against a scraped off section of Tennessee Street somewhere between 18th and 20th streets. The boulders that have rolled down from the backyard give some idea of the rocky landscape of the times. Plate 61 was taken in the block just to the south of the Tubbs Cordage Company, and is interesting because it shows the architectural style of a San Francisco four-plex in which two center staircases served the two upstairs families who shared the entrance hall with the downstairs folk.

Although neither of the Tennessee Street houses that Minor White photographed in 1949 remain (both have been replaced by industrial buildings), there are 31 extant houses from the 1880's and 1890's along Tennessee Street

from 18th Street south to 23rd Street—just past the diagonal property lines of the Tubbs Cordage Rope Walk. Jack Prichett contributed two views of some of the Victorian houses along Tennessee Street in the 700 block that have already been restored. (Plates 65 and 66.) The size of most of the street trees would indicate that in this neighborhood on Tennessee Street restoration began about 4 to 6 years ago.

Tennessee Street, in this area, is a neighborhood in transition. In the area near 18th Street (the subject of the contemporary prints) the Victorian houses have white residents. Closer to the historic Tubbs Cordage Works, the larger group of Victorian houses appears to be entirely a black neighborhood. A few of the residents are known to have been born here as children of the black workers who migrated to San Francisco in the early 1940's to work in the Potrero and Hunters Point shipyards (Shirley Moore, conversation, 1981).

The Irving M. Scott grammar school (seen on Sanborn Map 589) dates back to 1894, and its presence indicates that there were enough families in the area to justify building a large grammar school. The frame building is in poor physical condition but now functions as a neighborhood community center for a variety of programs, including the Potrero Hill Neighborhood Association. There are no longer enough children to warrant maintaining the school property, and the future of the building is uncertain.

It appears likely that eventually all of the Victorian Houses will be restored, or improved, even though Tennessee Street is primarily an industrial neighborhood. Whether the small black community will maintain its existence here is less predictable. Elsewhere in San Francisco, since 1960, the realization that there were a finite number of surviving Victorian stick houses has brought an end to their destruction, either by urban renewal enthusiasts or private owners. Instead, these homes now command an even larger price in the currently small amount of available housing in San Francisco **because** their number is finite. The possibilities for their restoration (once considered impractical) have been realized in sufficient numbers for most San Franciscans and visitors to appreciate their potential value. We do not know if the black community on Tennessee Street are home owners or renters—but their presence as a small and fragile community seems tenuous.

The Vanished Chinese Community on Minnesota and Tennesse streets. Earlier chapters on the Chinese in South San Francisco have traced their history as

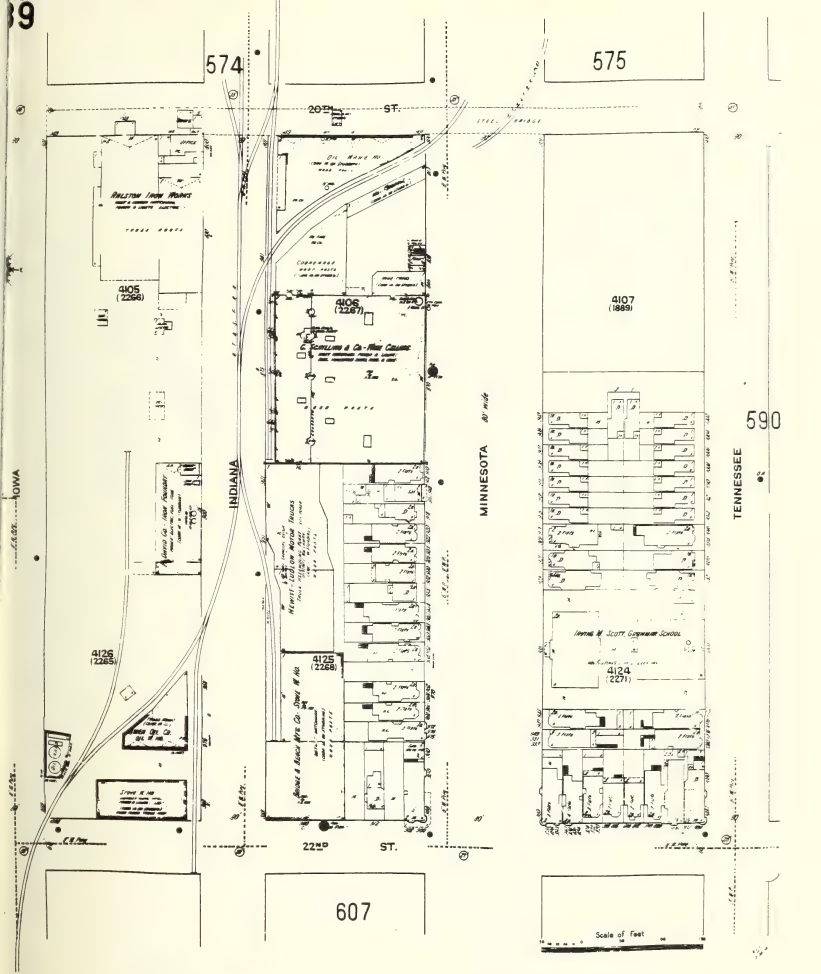


Plate 62: Houses on Tennessee Street near the Irving Scott Grammar School...Many of these 1880 row-Victorian houses still stand as they are shown on this 1919 Sanborn Map.
[San Francisco City Planning Archives]

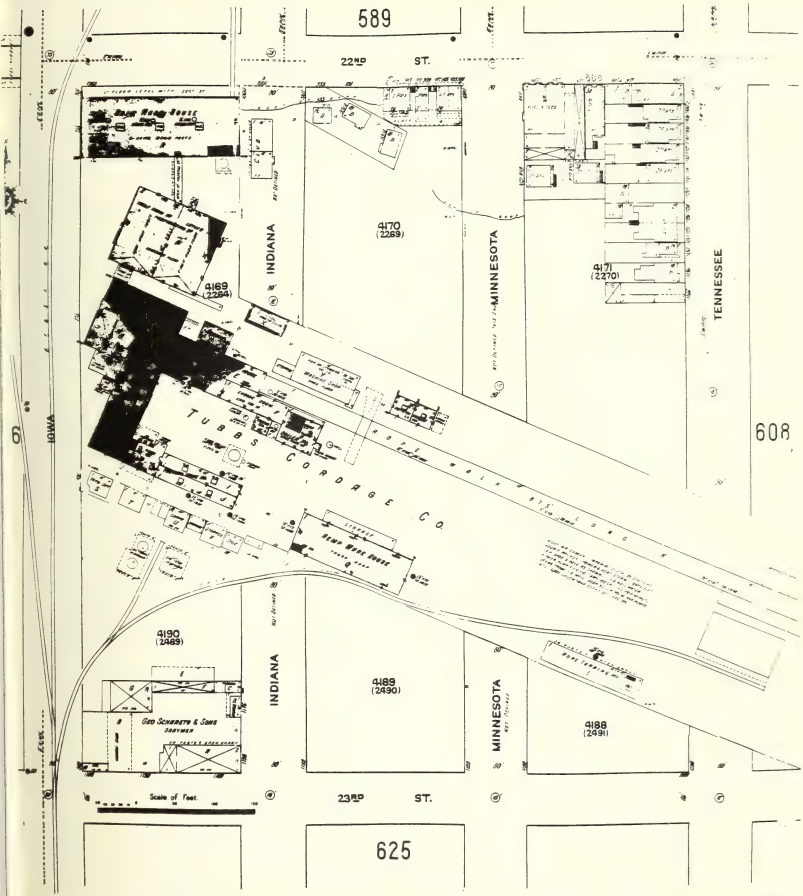


Plate 63: The Tubbs Cordage Company in 1919...Several of the original brick buildings persist, as do the diagonal property lines of the abandoned rope walk.
[San Francisco City Planning Archives]

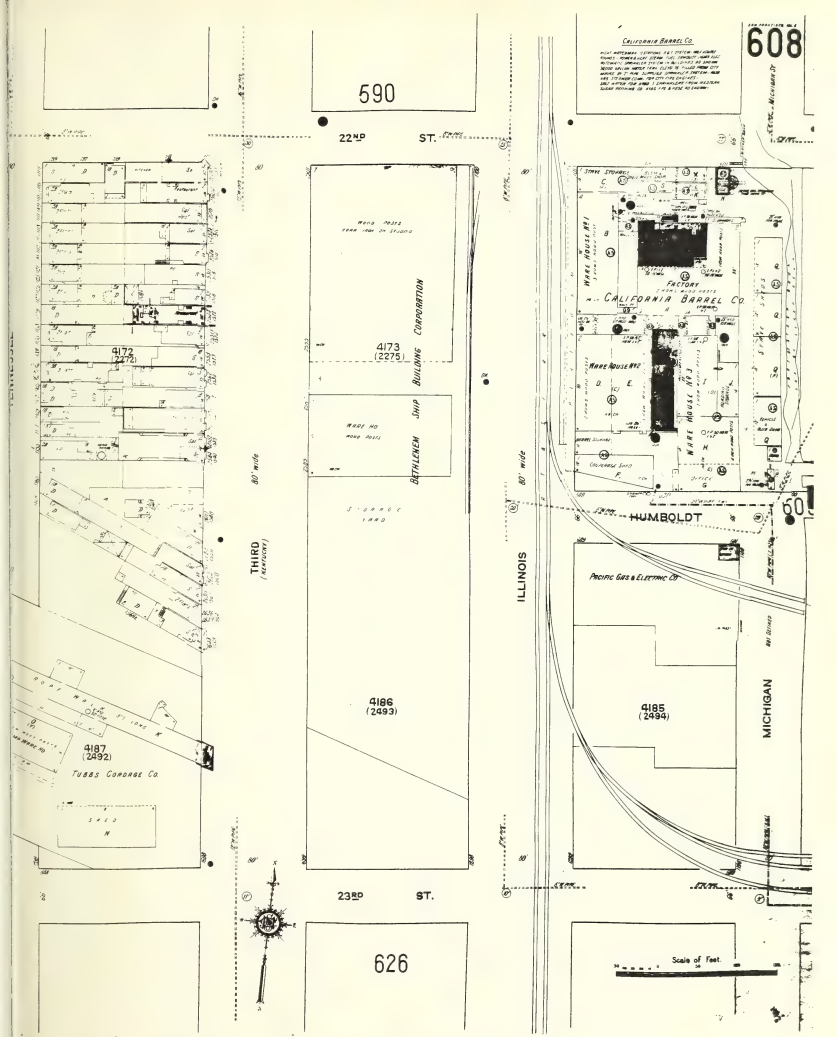


Plate 64: Tennessee Street in 1919...The dwellings just north of the Tubbs Cordage Company were much as they had been in the 1880's. [San Francisco City Planning Archives]

truck gardeners, shrimp fishermen, and factory workers as archival fragments could be pieced together from a variety of sources. The appearance of Chinese dwellings built in the line of unopened streets raises both historical and archaeological questions.

The first sign of the Chinese community in this area of San Francisco appears on the 1887 Sanborn Map as a characteristic scatter of small houses and sheds—including a cooper's workshop—labled "Chinese." The Sanborn Map from the Water Department archives was updated to 1905 and was rescued, partly burnt, from the 1906 fire. There is no Sanborn sticker update on this little group of houses in the street, so we may assume that they were there in 1901, when this volume was printed. Whether the Chinese predate 1887 is a matter for conjecture. They continued to live just north of the unopened line of 24th Street in 1919 (Sanborn Map 625) but by then in greatly diminished numbers. In 1901 there was a large "poultry yard" that touched on the irregular line of "the lagoon, formerly the Bay of San Francisco." Twelve structures, plus a stable and the cooper shop, appear in 1901; by 1919 only five remained. Block 4247 (bounded by 24th to the north, Minnesota to the west, Tennessee to the east, and the tidal mudflats to the south) is drawn with a rectangular street grid, but the word "Tide Flats" is still written across the block. The earlier map shows a clear deep indentation of the tidal lagoon, with the more numerous Chinese dwellings scattered along its shore. Plate 67 shows the 1887 community; Plate 68 is the 1919 settlement.

It is our surmise that the Chinese were working in the Pacific Guano-Fertilizer Company and the Potrero Compressed Yeast and Vinegar Works on Minnesota. It does not seem likely that any remains of these Chinese structures would remain within the line of the proposed construction along Tennessee past the line of 24th Street. However, the potential of construction cutting through a dump site from these Chinese residents would seem to be high.

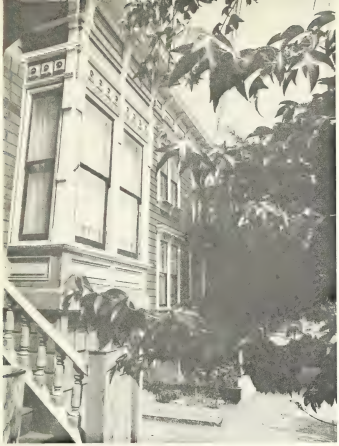
Hittell lists the "The Potrero Distillery and Compressed Yeast Company" in his 1882 compilation of San Francisco Industries. This would seem to place the timespan for the Chinese settlement back at least to that date. The extent and nature of their physical presence was larger at an earlier date is unknown. The extent and variety of their trash disposal pattern is also unknown, but it would seem likely that the tidal mudflats furnished a convenient dumping ground. As late as 1919, Map 13 clearly shows the undulating shoreline in this area, indicating very late filling indeed.

The Fleischman Yeast and Vinegar Works and the Pacific-Guano Fertilizer Company were precisely the same scale of manufacturing works as in Braun's Curled Hair Factory discussed in the earlier section on the Chinese near the Sunnydale/Yosemite transport. The owner's son described the Chinese work force his father brought with him from Oakland and expanded to include 40 men who lived within the small manufacturing compound in the second story of a converted barn.

It may well be that these Chinese worked in the two Minnesota Street factories, lived in small houses at the edge of the lagoon, and raised chickens in their poultry yard to supplement their diet and perhaps to sell. The presence of a small stable meant that they kept a horse and perhaps a wagon for transport to the city. We do not know if these were single Chinese men, as was the case with Braun's factory of a later date (1915), or if these were Chinese families. Newspaper accounts of the late 1880's and early 1890's report that there were no women living in the shrimp camps along Hunters Point—although the shrimp camp at China Camp in Marin consisted of many families during this same period. These feature stories on the shrimp camps at Hunters Point reported that there were women in the shrimp villages in the early 1880's and mid-1880's. This question could not be resolved by any archival search that the authors are aware of. The possibility of an oral history today extending back to the period that this small Chinese village existed is equally unlikely. Therefore, the only means of establishing the possibility of understanding anything of the nature of this group would appear to be through a study of their trash disposal into the mudflat that adjoined the community. The tidal mudflat extended to the intersection of Tennessee and 24th Street (and 23rd and 25th streets as well), but whether the dumping was limited or extensive or exclusively from the Chinese site is not known.

Shipyards on the Illinois Street Alignment

The Illinois Street alignment transects the sites of two boatyards or shipyards identified on George F. Allardt's "Map of Salt Marsh and Tide Lands. . . South of Second Street. It shows a third boatyard on the 26th Street alignment. This map was made from a survey commenced in May, 1868, and completed in January, 1869. Presumably the owner designations on the map would be of the latter date. North of the proposed Mariposa facilities alignment on Illinois



Plates 65 and 66: Tennessee Street in 1981...These working class houses of the 1889's are just in the process of rennovation in the 1980's. [Jack Prichett views]

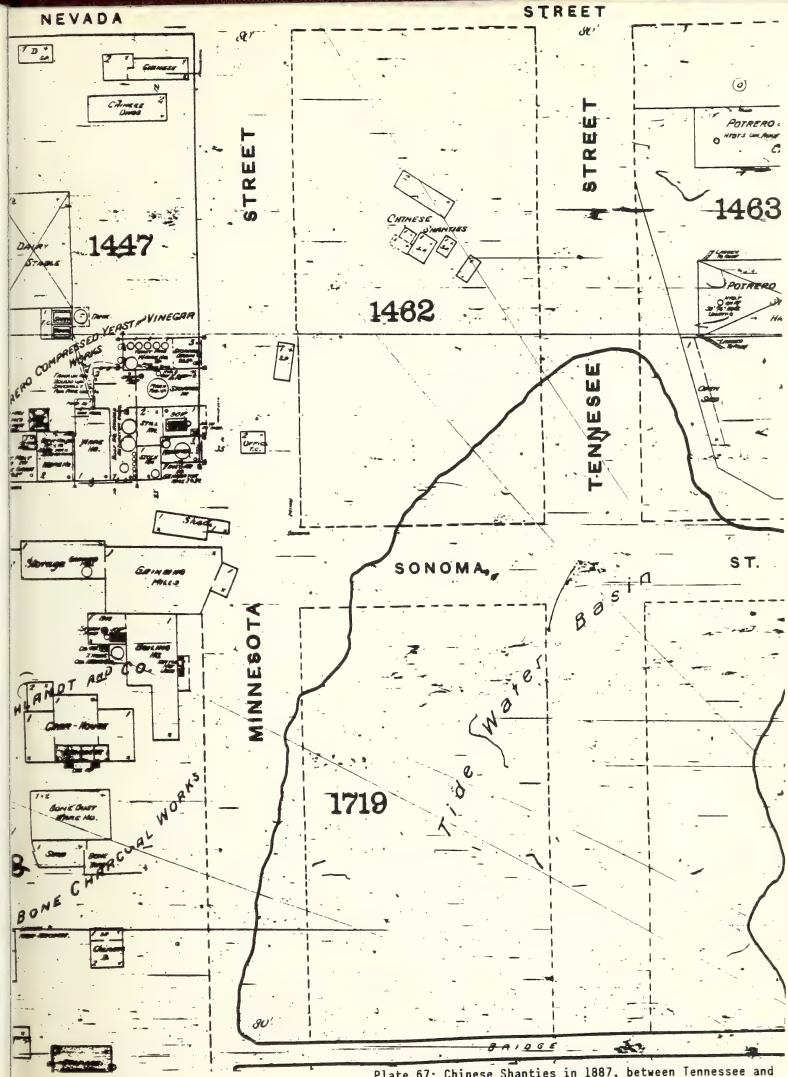


Plate 67: Chinese Shanties in 1887, between Tennessee and Minnesota Streets...The waters of the tidal basin extended north of Sonoma Street into Tennessee for 120 feet. [National Archives]

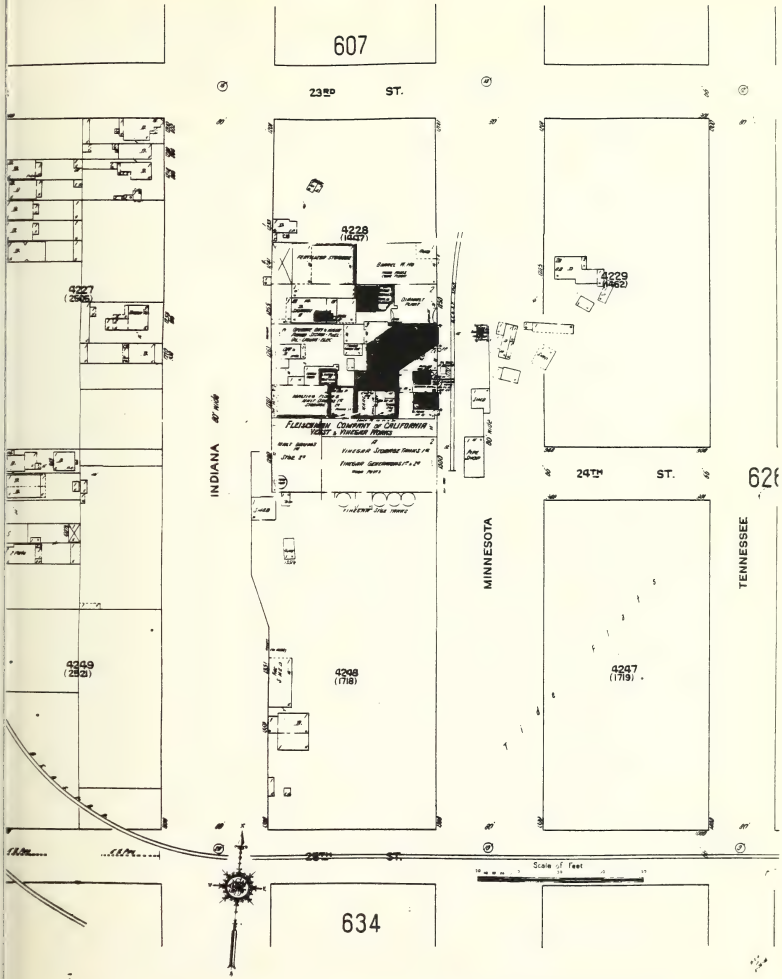


Plate 68: By 1919, the tide water flats still reached 24th Street...The informal scatter of shacks and workshops were directly in the line of Minnesota Street. [San Francisco Planning Department Archives]

Street between present day 16th and 17th streets were the shipyards of Patrick Henry Tiernan and Herman P. Hanson. Tiernan's ways projected from the north side of the tip of Potrero Point called Point of Rocks on the 1869 U. S. C. S. map; Hanson was on the south side. Both listed their addresses in the **City Directory** for the year commencing December, 1869, as the corner of Santa Clara (17th Street) and Kentucky (3rd Street). John North's long marine railway is shown on the same map far out on Potrero Point, at Sierra (22nd St.) and Massachusetts. North was not listed in the 1869 directory. These yards are mentioned here because this particular Allardt map shows **all** of the boat and shipyards of the Potrero, together with the names of the operators of all but two.

Illinois Street Yards. The two boatyards transected by the proposed Illinois Street alignment are those of Ervin and Winslow. Henry J. "Ewings" was listed as a shipbuilder at the east side of Illinois near Napa (20th Street) in 1869. "Erwin's House" is shown on an Allardt map of January 1870, at the northeast corner of Illinois and 20th streets, projecting slightly into Illinois Street. "Ewings" or "Erwin" was probably H. J. Ervin; his shipyard, north of the line of Napa Street, is off the border of this larger scale map.

Potential impact on remains from these yards by the sewer excavation is problematical. The shoreside ends of Winslow's three marine ways came within about 25 feet of Illinois Street, which suggests that capstans, yard activities, and at least temporary structures must have projected into the line of the street. Plate 50, taken from Owen's yard and looking directly towards Winslow's in the background, shows a smartly rising shoreline above the high tide line, with at least one craft drawn well up on the shore and small buildings behind it—presumably to the line of Illinois Street, which ended in the water at Ervin's House. Elevations from the U. S. Coast Survey maps of 1869 and earlier suggest that even a shallow (5-6 foot) excavation might encounter remains on this rising shoreline.

The area of potential at Winslow's extends from approximately 20 feet north of the northerly line of 20th Street to about 125 feet south of the southerly line of 20th—most specifically the 75 feet south of the southerly line of 20th Street.

In the case of Ervin's yard, the possibilities of encountering remains of the shipyard operation itself are low. The alignment transects the outer end of one of the two marine ways mapped in 1868, which at that point (Illinois

south of 19th Street) should be at a depth of approximately twice the proposed excavation. However, filling during the 1870's may have covered over an abandoned small craft or vessel. It such were the case, it would be close enough to the surface to be encountered. The area of potential sensitivity for such abandoned vessels extends from the midpoint between 20th and 19th streets to Mariposa Street, and includes the Mariposa pump station and resevoir.

Boatyard on 26th Street. The potential impact on this yard, also found on the 1868 Allardt Map, will be described here, though recommendations for any mitigation procedures will appear in the following section dealing with the Crosstown facilities. The marine ways—operator unidentied—shown by Allardt on his 1868-1869 map extended at a northwest-southeast angle directly through the intersection of 26th Street and Iowa. The archaeologically sensitive area would extend from the east side of Iowa Street approximately 150 feet westward. As is noted elsewhere, this yard had been cut off from access to the open Bay by the Bay View and Potrero Railroad bridge by the time Allardt plotted its location. However, the ways were still there at least as late as the early summer of 1868, or Allardt would not have shown them.

A note is here appropriate about Allardt's tidelands survey maps accomplished for the State of California. The original maps are notable for their accuracy, and accompanying notebooks sometimes contain important and interesting details. Allardt's job was only to establish waterlines and swamp and overflow lands in these surveys. While he frequently noted cultural features some distance from the water, an absence of structures immediately inland from the tideline does not mean they didn't exist. Furthermore, we have found that printed versions of maps are not necessarily accurate copies of manuscript versions. A case in point is the map of the area south of 2nd Street, in which the version printed in 1869, showing the same area of the Potrero that we have been describing above, places the marine ways in a slightly different position. Internal evidence, supported by sections of the map drawn to a much larger scale, indicates that the printed map (executed for the purpose of auction sale of lands) is a little sloppy here and there. At the same time, each version is apt to show some important features that may not be found on other versions. Thus, the somewhat more stylized 1869 printed map referred to shows buildings on San Bruno Road not found on the beautifully drawn 1868-69 survey.

Mariposa Facilities. It has been pointed out above that the potential for buried watercraft obtains along Illinois Street from the shoreline at Ervin's shipyard, about 125 feet south of 19th Street, north to Mariposa Street, and west on Mariposa to the proposed pump station/reservoir site, which is also a potential location of abandoned hulks. A discussion between Roger and Nancy Olmsted and an assistant engineer of the Port Authority in 1978 revealed that some years ago "two old whalers" were encountered in Potrero improvements. It seemed clear that no detailed observations or records were available that would substantiate the probable type and exact loction of the hulls. "Old Whalers" adequately defines the hulls as being those of large wooden vessels—and indeed old whalers dating to the vintage of the **Lydia** (1840) might well have been the vessels encountered.

Ninteenth century craft much smaller than seagoing vessels might well prove of equal or greater interest to maritime scholars. For example, there is great interest in the remains of two sampans of the Chinese shrimp fishery buried in the mud between high and low water at China Camp State Park in Marin County. Only about 18 inches of the sides of these craft above the floorboards appear to remain; had they been filled over for some reason, they would almost certainly be far more intact. So far, these are the only remaining craft of the extensive Chinese shrimp fishery of San Francisco Bay that have been located (except for a very small boat in the possession of the Chinese Historical Society in San Francisco). Given the nature of the proposed excavations in the former shallows of the Bay north and south of Potrero point, it is probably impossible that initial backhoe contact with a watercraft of sampan size (about 40 feet in length) in an unpredictable location would not result in initial damage of some magnitude. However, if backhoe operators are properly briefed as to the areas of sensitivity and shown photographs of what large and small vessel types may look like when that first bite of the backhoe reveals them, the initial damage could be limited.

Returning to Illinois Street, the segment from the 23rd Street connection to 3rd Street (the location of the wharf-like extension of the Tubbs ropewalk seen on the 1869 U. S. C. S. map) for a distance 350 feet northward on Illinois Street is potentially sensitive to abandoned watercraft, particularly of the size range of the sampans described above. The 23rd Street connection to 3rd Street

an area of early filling (c. 1868) along the line of the bridge to Hunters Point, and while a boat hull would appear less likely here, if there were one it might date back to the late 1850's.

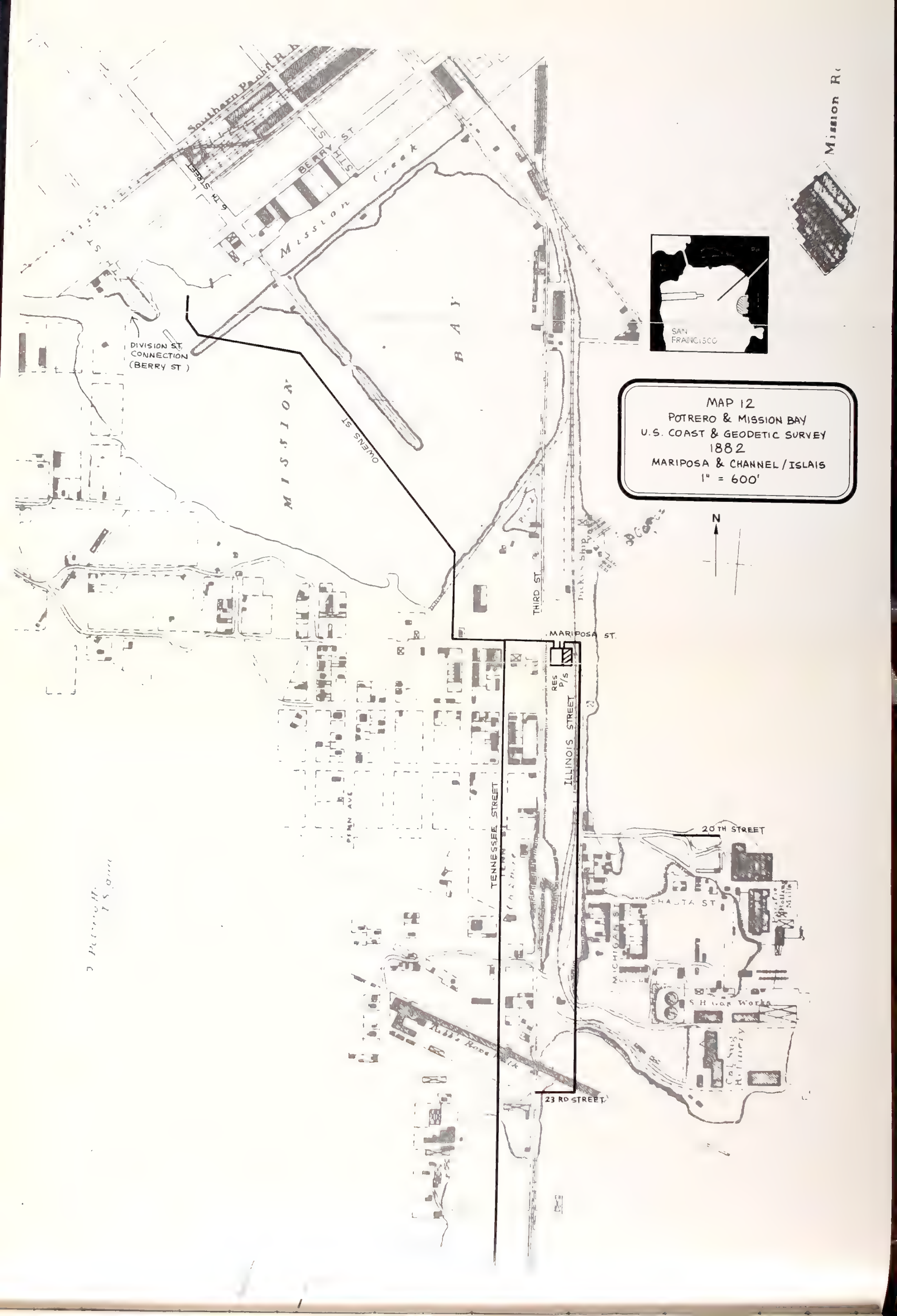
Channel-Islais Transport. Tennessee Street, from the line of 23rd Street to the end of the alignment at 26th Street, may be considered an area of moderate sensitivity for abandoned watercraft. The same may be said for the Islais Creek Transport/Storage alignment on 26th Street westward to the 1868 marine ways on the shoreline at Iowa Street.

The area of the alignment in the waters of former Mission Bay, from about 225 feet north of Mariposa Street to Owens Street along the line of Owens Street, and thence along various lines to the south side of Channel Street, has the physical possibility of sunken watercraft in the line of the proposed excavation. The probability of such a find seems low, particularly because of the extemely shallow water extending far offshore along most of this route (as it appeared in 1869, when Mission Bay was still navigable for small craft). The most sensitive portion of the proposed alignment with respect to sunken watercraft in the Mission Bay area would appear to be along the line of Minnesota Street, from 250 feet north of the Mariposa Street alignment to Owens Street. This segment also contains a probable dump site of more than usual sensitivity, as will be described below.

Northern Bayside Dump Sites

The location of a potential Chinese dump site associated with a lagoon-side village of the turn of the century at around Tennessee and 24th streets has been described above. Five dumping sites were identified in the Preliminary Survey as being of sufficient potential to require some thoughtful analysis as to the desirability of monitoring or mitigation work; all of these lie within the Northern Bayside facilities area.

Because of the necessities of scheduled contract work, an intensive study was undertaken and submitted in April, 1981, dealing with the Division Street Connection, a large proposed excavation on Berry Street at the crossing of 7th Street. This study, with its conclusions and recommendations, deals with one major kind of dump—the large-scale disposal area (indeed, the "City Dump" of the '80's and '90's) that was itself more or less systematically scavenged for marketable trash at the time of disposal.


Southern Pacific R.R.
6TH STREET
BERRY ST.
MISSION CREEK
DIVISION ST.
CONNECTION
(BERRY ST.)
OWENS ST.
MISSION BAY
THIRD ST.
MARIPOSA ST.
RES
P/S
ILLINOIS STREET
TENNESSEE STREET
PENN AVE.
20TH STREET
SHASTA ST.
MICHIGAN ST.
23RD STREET
SAN FRANCISCO
N
MAP 12
POTRERO & MISSION BAY
U.S. COAST & GEODETIC SURVEY
1882
MARIPOSA & CHANNEL / ISLAIS
1" = 600'

In the interest of avoiding repetition, we will follow these introductory comments with the full Division Street Connection report. With this background of the dump-filling of Mission Bay in place, together with the analysis of the potential information value of the material deposited under such conditions, it will be possible to consider the potential archaeological value of other sites more succinctly.

Minnesota Street Between 17th and Mariposa Streets. The Channel-Isalis Transport alignment crosses the original southern shoreline of Mission Bay about 225 feet north of the sewer alignment on Mariposa Street along the extended line of Minnesota Street. Almost the entire 225-foot length of this segment of the proposed excavation crosses what was swampland in 1852. By 1869 (Map 11) the swamp is no longer shown; a road crossing the alignment and leading to the shore of Mission Bay is seen. The shoreline appears to be in approximately the same location as in 1852—250 feet north of the line of Mariposa Street. By 1882 (Map 12) filling has taken place to a point about 525 feet north of Mariposa Street—almost to the line of Owens Street. The 1900 Coast & Geodetic Survey resurvey shows what appears to be a positive regression of fill, back almost to Mariposa Street west of Minnesota. As we can safely assume that fill was not being removed, this anomaly probably represents the **appearance** of the mucky, unfilled sinks remaining in landlocked Mission Bay.

The reason for investigating the filling sequence in this spot on the original south shore of Mission Bay is that two construction workers in the crew uncovering the hull of the **Lydia** at the foot of King Street in the Channel contract area gave intriguing verbal reports of a dump that had been encountered somewhere around 17th Street. Unfortunately, at the time of that excavation, no one had thought that three years later the details of the precise location of this deposit would be highly interesting. According to these workmen who seemed to be very knowledgeable bottle hunters—a common occurence in the construction trade—many old bottles dating to the 1850's and 1860's and even a Spanish jug dating to 1835 had been retrieved from this now-missing cache.

If there were a dump in the swamp and on the shoreline, it would appear to be consistent with the U. S. C. S. map of 1869 (Map 11), with its little road

meandering across the swamp to the shoreline, where no structures are visible. Furthermore, this type of dump would very possibly have some of the integrity that the City Dump, on the much-developed northern shore of Mission Bay, lacks. Dump materials would probably have come from nearby sources and would have laid undisturbed where they were deposited.

About 400 feet west of the line of Minnesota Street, the Pacific Glass Works opened the first successful bottle manufacturing plant on the Pacific Coast, beginning its actual operation in June, 1863. According to the City Directory, the Pacific Glass Works employed 13 glassblowers brought in from the East and 45 to 50 local men and boys and produced bottles for pickles, fresh fruits, mustard, beer, medicines, and wines. The address was given as Iowa and Mariposa on the Potrero. This would be the location of the large buildings seen on Mariposa Street west of the Channel-Islais Transport alignment on the 1869 Coast Survey chart (Map 11). The development and various plant locations of the Pacific Glass Works, San Francisco Glass Works, and finally, San Francisco & Pacific Glass Works are traced in **San Francisco Waterfront** (pp. 85-90). The Pacific Glass Works' Potrero plant appears to have been no longer operating in 1869, though still listed in the directories. While birdseye views of 1868 to 1875 show the plant belching smoke, the Pacific Glass Works was bought out by the San Francisco Glass Works in 1876 and the operation consolidated in the factory on King Street near Fourth.

The possibility of locating a bottle dump connected with the early San Francisco Glass Company led to a test boring program along the Berry Street C-1 (Channel) sewer alignment in 1877, with generally negative results.

Tennessee Street South from 23rd Street. As can be seen on Map 11, filling extended southward alongside the trestle of the Potrero and Bay View Railroad by 1869. This fill, together with the trestle itself and the powder company wharf crossing the trestle at a right angle at approximately 25th Street, created a useless cove south of the point where Tennessee Street crossed the shoreline at 23rd street, immediately south of the ropewalk. The 1882 Coast & Geodetic Survey manuscript chart (Map 12) shows this cove being filled southward—but without any clear street improvements or industrial establishments that would suggest anything so purposeful as contracted filling. The southward progress of filling stopped by 1882, though the cove between Third Street and the line of

Indiana became narrower by the time of the 1900 resurvey. The railroad trestle along the line of modern Third Street became a causeway, connecting to the Army Street causeway, thus completely enclosing the southern portion of Tennessee Street in a tidal pond.

The progress of this fill along Tennessee Street southward from 23rd Street is highly suggestive of the possibility of casual dumping from industries and residences in the area.

1. The 150 feet on the Tennessee Street alignment south of 23rd Street may have been filled in large part by such dumping during the late 1870's.

2. From this point to 24th Street, a Chinese settlement (discussed earlier) occupied the shoreline and part of Tennessee Street from the late 1880's to after 1910. The probability of the head of the pond on Tennessee Street having been the community dump is rather high.

3. Finally, as late as 1919 (Map 13) the line of Tennessee Street still crossed ponds between 24th and 25th streets and between 25th and 26th streets. It appears probable that this area of tidelands was filled primarily under contract, though it is also likely that neighborhood dumping took place.

Bay Street. The strong possibility of finding an early 1880's dump site, perhaps containing a very large proportion of Chinese artifacts (as was the case in the adjoining N-5 pump station site), is present on the Bay Street leg of the North Shore Transport between Kearny Street and The Embarcadero. This site is discussed separately at the end of the Northern Bayside facilities section of this report.

Significant Extant Structures in the Northern Bayside

Two classes of above-ground structures that should be considered in terms of potential impact exist in the Northern Bayside area: (1) early industrial sites, and (2) early residential structures. Consideration is given here only to those structures deemed to have potential significance from the standpoint of the criteria of the National Register of Historic Places.

Industrial Sites: It has been mentioned that there are some remaining brick buildings from the Tubbs Cordage Company that would appear to date from early 1880's—certainly from 1887, the date of the Sanborn Maps. These buildings

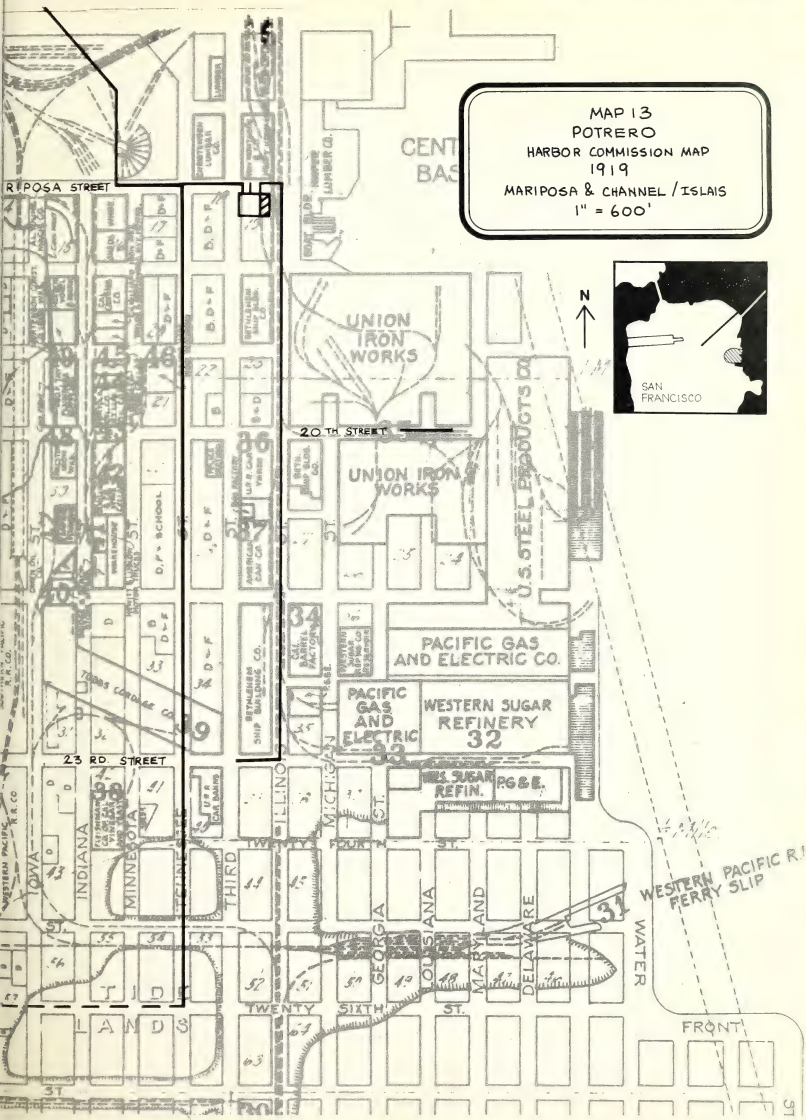
are just north of 23rd Street between Tennessee and Minnesota. Should the proposed construction of the Channel Islais Transport/Storage proceed down Tennessee Street, it will impact the remains of the ropewalk in the street proper. As was emphasized earlier in the text, the National Maritime Museum at San Francisco has installed the restored office of the Tubbs Cordage Company on the Hyde Street Pier in the Golden Gate National Recreation Area. The museum also has several of the carts that mechanized the ropewalk at an early date. Therefore, the installation of the ropewalk would be a great interest to museum-goers.

It would appear that there would be no direct impact on the remaining brick structures directly associated with the works in the 1880's because of their physical distance from the construction zone--over 300 feet to the west.

The Bethlehem Steel Works occupies the site of the earlier Union Iron Works which can be seen in Plates 55 through 58. Many of these large brick industrial buildings remain much as they were in 1883; others have been extended or modified. The building of the 20th Street sewer between the line of Maryland and Louisiana streets poses a question as to the type of impact upon these historic buildings. The proposed depth of this excavation to over 20 feet below city base may require extensive dewatering, which may in turn effect these buildings. Considering that the land they occupy is filled land, some thought should be given to indirect impact from a structural engineering viewpoint.

The Bethlehem Steel site, as an industrial site that contains the Union Iron Works and the remains of the Pacific Mills, is eminently eligible for the National Register of Historic Places as one of San Francisco's first major shipbuilding plants. These buildings escaped the 1906 earthquake and fire and are largely intact brick industrial buildings with some pretentions to architectural importance, both as to detail and in scale. The association of the Union Iron Works with shipbuilding activity through Spanish-American War of 1898, the First World War, and the Second World War would give the huge complex a clear historical continuity of importance, not only to San Francisco or California, but to the United States. There could be little doubt that the entire site would qualify for the National Register of Historic Places.

The future of the south San Francisco waterfront is uncertain except that it will be developed, either for commercial and industrial use or for mixed land use mixture with residential development. The Bethlehem Steel Company continues to occupy the largely unused site. Whether the shipyard would be


MAP 13
POTRERO
HARBOR COMMISSION MAP
1919
MARIPOSA & CHANNEL / ISLAIS
1" = 600'
N
SAN FRANCISCO
MARIPOSA STREET
20TH STREET
23RD STREET
UNION IRON WORKS
UNION IRON WORKS
U.S. STEEL PRODUCTS
PACIFIC GAS AND ELECTRIC CO.
PACIFIC GAS AND ELECTRIC
WESTERN SUGAR REFINERY
32
U.S. SUGAR REFIN.
PG & E.
WESTERN PACIFIC R.R. FERRY SLIP
D.P.'s SCHOOL
TIDE LANDS
TWENTY FOURTH ST.
TWENTY SIXTH ST.
FRONT
WATER
ILLINOIS
MICHIGAN
INDIANA
MINNESOTA
IOWA
THIRD
GEORGIA
LOUISIANA
MARYLAND
DELAWARE

reactivated in the event of another war, or some unanticipated boom in shipbuilding is a question for conjecture. The size and location of the plant would appear to make this a very valuable property as development in the city of San Francisco continues to move south.

Appropriate Mitigation for the Union Iron Works. At least 120 days prior to the construction of the 20th Street sewer a discussion should take place regarding a nomination to the National Register of Historic Places. This nomination should include the history of the Union Iron Works, a photographic essary that includes contemporary views of buildings, historic views to supplement those included in this report, Sanborn Map drawings with changes noted, and a structural study of the potential impact of the sewer construction on those historic buildings within 500 feet of the proposed sewer.

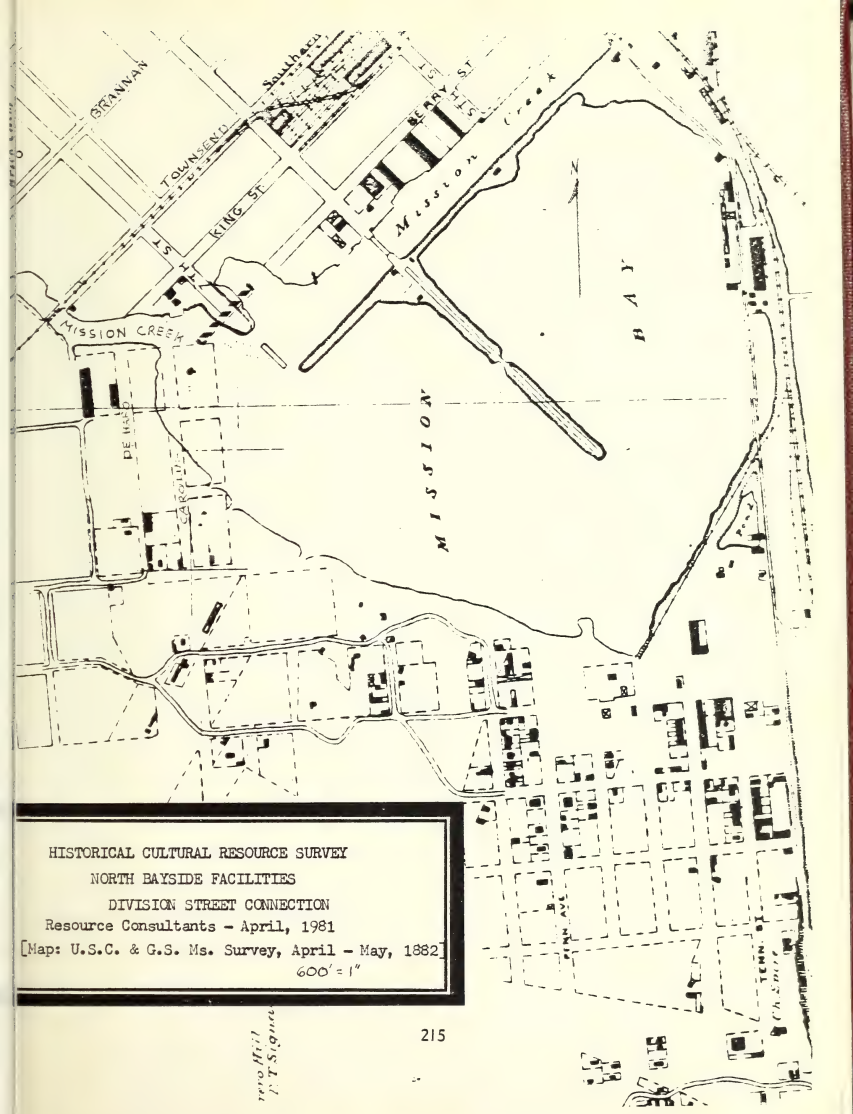
Residential Sites. Some 31 Victorian residences on Tennessee Street were located in the field study accompanying the archival study on the Northern Bayside. These houses date back to the mid-1800's and can be found on the 1901 Sanborn Maps. It is believed that these were the family homes built for the foremen and skilled craftsmen from the heavy Potrero industries. In most instances they are more elaborate than the workmens' cottages seen on Irish Hill in Plate 54.

As has been noted earlier in the text, there is a growing awareness in San Francisco that only a finite number of Victorian houses escaped the earthquake and fire of 1906. As more and more Victorian houses have been restored, their escalating value has become more obvious, thus insuring the future life of houses like the ones on Tennessee Street. The houses shown in Plates 65 and 66 are examples of the northern end of this area, near 18th and Tennessee. These renovated houses appear to be occupied by white tenants and owners. Living in houses from the '80's that have yet to be restored is a black community that exists as an enclave in what is primarily an industrial section of south San Francisco.

Should the Channel-Islais portion of the proposed Bayside sewer proceed down Tennessee Street, a 66" force main at -25 feet below city base would require enough extensive construction possibly to impact these Victorian houses. The residences form a network of some of the last remaining homes from the 1880's and would be eligible for the National Register of Historic Place, perhaps

as a historic district, or more probably as a network of Victorian Homes closely associated with the buildup of heavy industry in the Potrero.

Appropriate Mitigation for the Tennessee Street Victorian Houses. Should the Channel-Islais portion of the proposed Bayside sewer **reconsider** the use of Tennessee Street instead of Illinois Street, as is presently plannned, the question of impact to these 31 houses should be re-opened. In addition to structural surveys for those houses within 100 feet of the excavation, a determination of eligibility for the National Register of Historic Places should be undertaken no less than 120 days prior to any planned construction. This determination should include the following: (1) an architectural survey that includes both contemporary photographs and historic views and maps, (2) a documented oral history of the residents, and (3) additional historic research sufficient for nomination to the National Register.



HISTORICAL CULTURAL RESOURCE SURVEY
NORTH BAYSIDE FACILITIES
DIVISION STREET CONNECTION
Resource Consultants - April, 1981
[Map: U.S.C. & G.S. Ms. Survey, April - May, 1882]
600' = 1"

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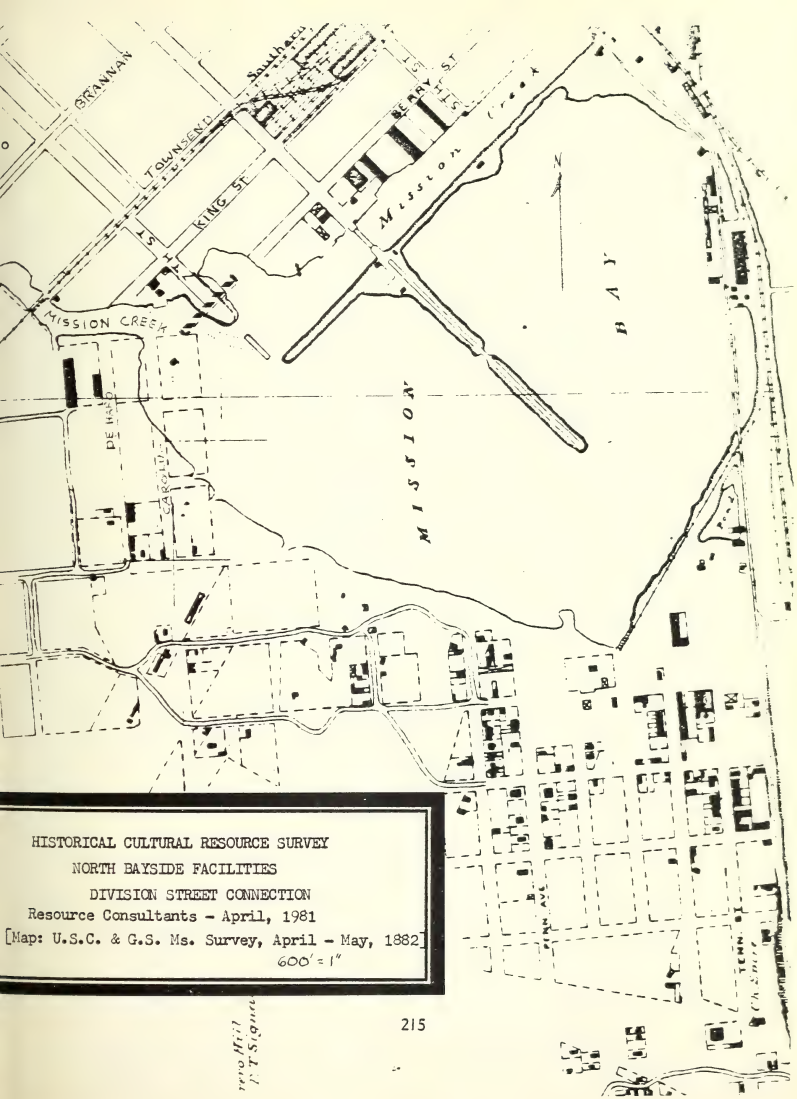

HISTORICAL CULTURAL RESOURCE SURVEY
NORTH BAYSIDE FACILITIES
DIVISION STREET CONNECTION
Resource Consultants - April, 1981
[Map: U.S.C. & G.S. Ms. Survey, April - May, 1882]
600' = 1"

DIVISION STREET CONNECTION SEWER - NORTHERN BAYSIDE FACILITIES

HISTORICAL CULTURAL RESOURCE SURVEY

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DIVISION STREET CONNECTION OF NORTHERN BAYSIDE FACILITIES

> Attention is called to the fact that all the sewerage of the Western Addition, The Mission, and a portion of the Twin Peaks country, an area of over 4,000 acres, rushes through the open waterway of Channel street from Seventh street to the bay, meeting with the vileness ejected from several Potrero sewers. The engineers discussing this say: "The discharge from these sewers, representing as it does more than one-half the drainage of the built-up portion of the city, ebbs and flows in Channel street, impregnating the banks of the channel and the mud in the bed, and coating the piles under the wharf with an indescribable filth.
>
> If there were a large tidal area at the head of Channel street there might be some hope of having a part of this filth carried to the bay at each ebb tide, but the tidal area is inadequate, and by reason of the rapid encroachment of street improvements it will soon be obliterated entirely. The situation has been made still worse by the dumping of garbage upon Mission bay lands, which still continues. (**San Francisco Examiner**, July 23, 1893)

Description of the Construction Project

The Division Street connection is proposed to start in Berry Street, approximately 200 feet west of 7th Street, and proceed for approximately 400 feet east, from a proposed connection structure 50 feet wide and 75 feet long. The Division Street sewer is planned to be about 30 feet wide and 31 feet deep. The elevation on Berry Street at 7th Street is 1 foot above city base, or 12.7 feet above the mean low tide level.

The Natural Site

The proposed Division Street Connection, as shown on the Coast Survey Map of 1852, lay entirely within the waters of Mission Bay, south of Steamboat Point.

The Division Street sewer connection terminates at its western end directly in the channel of the mouth of Mission Creek (U.S. Coast Survey Map 1853, based on survey information of 1852).

Paleontological and Prehistoric Cultural Resources

The possibility of paleontological and prehistoric cultural resources would seem to be impossible in the case of paleontological resources, and very nearly so in the case of prehistoric resources, due to the watery environment of Mission Creek and Bay. Only the most unpredictable prehistoric site could be considered as the result of very old land changes in the mouth of Mission Creek. An example of this type of site would be the skeleton remains located at the BART site, SFr-28, at a depth of 75 feet and date to about 4950 $\pm$ 250 B.P.

Spanish-Mexican and American Period to 1874

Mission Creek was a navigable stream that led to the Mission Dolores (established in 1776). In the early 19th century, several boats as large as "two 30-ton schooners" built at Fort Ross carried hides and tallow and engaged in other trading activities between the Missions around the bay, including the Mission Dolores landing on Mission Creek (Young 1912: II, 37). The navigation of the creek continued through the 1850's and 60's, as is indicated not only by the 1854 determination of the State Legislature that the creek was a navigable stream, but by the franchise for the Brannan Street Road of 1855, which required a draw bridge so as "not to obstruct the free navigation of the creek" (Sharpsteen 1942: 115).

A lithograph view of the "Mission Dolores district" made in the 1860's (Bancroft Library), shows small cargo vessels at what appears to be a brick yard or some other form of landing between 16th Street and 9th Street. It was not until 1874 that the portion of the creek above 9th Street was officially vacated as a navigable stream (Sharpsteen 1942: 115). Birdseye views of San Francisco in the 1860's show sailing cargo craft operating on Mission Bay (and presumably on the creek) even after the completion of Long Bridge out Fourth and Kentucky streets to the Potrero in 1865.

As of the middle 1870's, the mouth of Mission Creek in the area of the Division Street sewer appears to have been about the same as it had been 50 years before. Shortly after 1874-1875 great changes associated with the filling of the Mission Bay tidelands soon altered the situation.

Potential Cultural Resources from the Spanish-Mexican and American Period to 1874. As the navigation of Mission Creek was the principal, and perhaps sole, activity that could have resulted in the deposit of historical cultural materials during this period, cultural resources other than watercraft themselves would consist only of materials lost or thrown overboard from boats. Judging from the approach of the tidal channel of Mission Creek, as seen on the 1852 Coast Survey Chart, it is physically possible, but not very probable, that the sunken remains of some watercraft of this period could be encountered. The possibility of such a find dating from before the early 1870's would appear to be limited by the very fact that the proposed sewer excavation is almost entirely in the main channel that would have been kept free from major navigational obstructions.

Filling in Berry Street 1874-1895

A manuscript map of land ownership of lots from Channel to Berry Street between 6th and 7th streets, dated "1870's," was located in the archives of the Bancroft Library. The lots were on the average of 45 by 120 feet, and belonged to some two dozen owners. A search of **Langley's City Directory** for 1877-1878 indicated that all of the owners were land investors. The land ownership map of the late 1870's is a map of waterlots. For example, some of the investors in submerged waterlots were W. L. Duncan, a stock broker on Montgomery Street; Issac Kohn, a merchant in the financial district; J. P. Treadwell, an attorney at law; and T. Rutherford and Samuel Grosch, the proprietors of the Commercial Flour Company.

Dates of Filling Berry Street. It is important from the standpoint of both potential garbage deposits and other resources to establish as closely as possible the date of the filling of Berry Street along the line of the Division Street connection. The records appear sometimes vague and occasionally contradictory on this matter. The **San Francisco City Directory** for 1878 announced that the Berry Street Railroad, commencing at the eastern line of 7th Street and proceeding westward, would be in operation by the date of publication (Langley 1878: 20). This obviously did not come to pass. It is difficult to question the probable accuracy of the U. S. C. & G. S. manuscript resurvey of 1882, which goes even so far as to specify that the survey work was done between April 24th and May 31st of that year. This map shows approximately 100 feet of

the western end of the Division Street Connection and 175 feet of the eastern end of the Division Street sewer in what were still areas covered by water.

The map evidence is consistent with the Superintendent of Streets report, published in the **San Francisco Municipal Report of 1880-1881**, which states that on October 9, 1880, Seventh Street from Berry to King was filled with 7,278.87 cubic yards of earth under city contract. This contract type filling would not ordinarily be expected to contain more than scattered elements of cultural debris. The 1882 manuscript map shows 7th Street filled within about 90 feet of the Channel Street property line, together with what appears to be a detached but completed bridge structure 200 feet long across the line of Channel Street. The implication here is that the contract filling of 7th Street continued after May of 1882 south to the bridge over Channel Street. Thereafter contract fill also connected the bridge with the embankment forming the south side of Channel Street. However, the highly irregular shoreline shown east and west of 7th Street proper is strongly suggestive of non-contract filling, **i.e.**, random dumping.

The Probable Nature of the Fill. Because the proposed Division Street excavation crosses the peninsula of fill and the watery areas on both sides of 7th Street, as shown on the 1882 map, it is of some interest to determine the nature of the filling that was going on in this period. The **San Francisco Daily Evening Post** ran a series of articles, "Try Tramping," from March through August of 1878, in which the reporter, dressed as a tramp, described life in the most poverty stricken areas of San Francisco. Although his prose tended towards an exaggerated style that would capture the more morbid fancies of his **Post** readers, his basic information was detailed enough to be taken as correct.

By March 30th, he had reached the city dump: "In the southern part of the city, off Berry Street, between 6th and 7th, I came to where is daily disposed the refuse of the city. Here congregated many people of all nationalities. . . . With a general air of dejected doggedness many were busily engaged with pitchfork, shovel or stick, sifting each load as it was dumped from the reeking, overflowing carts. Nothing was too small, or too little valuable for their wits to utilize. . . . Rags, old bottles, scraps of iron, old sacks, bricks, oystershells, half-decayed fruit, vegetables were prized. . . ." On August 16th he described the commerce that evolved from recycling the city garbage: "At the corner of 6th and Berry, Chinese scavengers handled rags that brought from 1 to 3¢

DUMPVILLE—A SCENE OF DESOLATION.

Plate 70: The thrifty Potrero Hill housewife makes a deal...There was a market for just about everything that could be carted away. [California Historical Society]

Plate 71: Dumpville Shut Down by Police in 1895...The artist sketched the end of the shanty-town dump looking south from Channel Street towards the line of Owen Street. [Bancroft Library]

per pound, sacks 3 to 8¢ each, bottles 5 to 15¢ per dozen—small medicine bottles, beer bottles and long-necked champagnes ranked in order names—first mentioned, the least valuable. Iron scrap a cent a pound."

The city dump described in 1878 persisted until 1895, gradually extending southward until it is said to have covered twenty acres south of Channel Street between 6th and 7th streets in an area that was largely owned by the railroads. In 1889 the entire block between Hooper and Irwin was garbage filled and the salvage rights were under the informal but effective control of a "dump trust" that consisted of six people, who in turn employed "6 men at $9 per week" as scavengers. The only other people permitted to salvage were children looking for firewood or for chicken feed. As many as 300 teams of horse drawn drays daily brought in the refuse from the South of Market area (**Chronicle** November 22, 1889).

Garbage, like liquid waste, prefers to flow downhill, because horse-driven garbage carts found going downhill easier. Individual draymen made private contracts with householders to remove waste—sometimes paying hotels and larger boarding houses for the privilege of hauling waste that could be sold to hog farmers. The congested South of Market continued to receive immigrant populations from Ireland, Germany, and the depression ridden East Coast. Ward 10, which included the 87 acres of the Yerba Buena Center, was the subject of intensive study by the authors in a three volume report (1977 through 1979). This most densely populated area of San Francisco included families with boarders and boarding houses that catered to floating populations of single men looking for seasonal work, as well as some of San Francisco's largest and fanciest hotels, such as the Palace and the Grand.

Although the largest part of the South of Market population was working-class, there were enclaves of middle-class neighborhoods that persisted well into the late 1880's and early 1890's. Nor would garbage at the city dump have come entirely from the South of Market proper. The "garbage-shed" would have included the eastern and southern slopes of Nob Hill, from the fringes of Chinatown through the business district to Market Street, and west through the heavily built-up middle-class neighborhoods from California Street to the old Civic Center triangle between Larkin, McAllister and Market. In addition, the heavily populated Hayes Valley district, west of Van Ness Avenue, must have exported its garbage southeast to the city dump in Mission Bay. The inner Mission district, containing a rich mixture of lower and upper middle class dwellings, as well as industrial sites, presumably contributed its share, too.

In short, the city dump area on the north shore of Mission Bay presumably served as the dumping ground for an almost complete cross-section of San Francisco of its period. Therefore, the garbage collected in the city dump cannot be archively identified as belonging to any particular social class or ethnic group, nor even to any general neighborhood.

The degree to which city garbage was picked over and recycled may indeed be the reflection of the hard times that the poorest populations of San Francisco were experiencing. San Francisco labor, which had always been better paid than East Coast labor, saw a drop in wages from the 1870's to the 1880's, and a fierce competition for any jobs—from skilled iron moulders to street sweepers. The resulting anti-Chinese movement in the Workingman's Party is just one reaction that typified the times. The **South of Market Journal** is full of recollections of the lengths to which children went to secure coal or firewood. Second-hand stores, pawnshops, and junk dealers were everywhere. Thrifty housewives saved rags, bottles, and papers to sell to the passing junk collectors, (see Plate 70). By the time of the "dump trust" of 1889, even broken glass was being sent back to China, just as cans were being smelted at the corner of Sixth and Channel behind "a mountain of tin cans twenty to thirty feet high." Spoiled food from damaged tins was dumped into a wooden trough that sloped down into Channel Creek in order to salvage the cans (**Chronicle** November 22, 1889).

"Dumpville" continued in existence until the police raided the area in 1895 and are said to have effectively removed the some 150 vagrant scavengers and hoboes who made this area south of Channel Street their temporary home. As the **San Francisco Call** reported, "The great trouble with Dumpville was that it happened to have been located upon land belonging to the Southern Pacific and its citizens had no real resources of their own." The railroads complained of theft of lumber and freight from their yards and warehouses, so the police raided Dumpville and pulled down the shanties and shacks that were the improvised homes for San Francisco's poorest vagrant population (**San Francisco Call** November 11, 1895). "Dumpville—A Scene of Desolation" was sketched by the Call artist looking from south Channel Street toward the Potrero. The still unfilled tideland in the center background, as well as the dump area surrounding it, will be transected by the proposed Channel-Islais transport 21B along Owens Street.

The city attempted to keep the area clear of vagrants and regulate the health hazards of the area by covering the garbage with clean fill, but according to Captain Fred Klebingat, as late as 1909, "Channel Creek was an open sewer. . . . The creek had several names: Mission Creek, Third Street Channel Creek, but it was universally known up and down the coast by sailors as "Shit Creek" (Olmsted interview, 1976).

Questions of Significance of City Dump Sites. We have considered the potentiality of the Division Street sewer transecting part of what was one of the city's largest dump sites (from at least 1878 up until 1895) at some length because the subject of urban dumping sites has been considered to have great potential for learning about urban life, from an historical archaeological viewpoint. We are not here speaking of urban trash deposits that are directly related to individual sites (as was the case in the Yerba Buena Center Study of 1979), which can in turn be classified by social class or ethnic group according to census data and other archival means, but of general urban dumping locations.

Wirth Associates monitored Pacific Gas & Electric's excavations for manhole locations along 6th Street, because of the documented evidence of the city dump described at length above. On 6th Street, 570 feet south of Channel, "fill from 3 feet to 10 feet consisted of wet brown sand with an abundance of historic refuse. The artifacts appeared to continue well below 10 feet, but due to water seepage, the excavation was terminated at this point" (Wirth 1979: II, 29). The other two archaeologically monitored pits were at 6th and King Street, where there was encountered "decomposing leather remnants underlain by fill at 5.8 and 6 feet, and fill consisting of dark brown sand with ash and historical cultural material. Although the artifacts appeared to continue below 10 feet the excavation was terminated at that point. . .at a depth of 4.2 feet, medium brown sand with brick fragments along with other cultural materials was removed from this trench" (Wirth 1979: 25).

In evaluating the significance of the artifacts observed on 6th Street, Wirth Associates concluded that, "Even though urban trash collection practices destroy much of the context of the refuse, **i.e.,** who used it and where, much information concerning diet and other urban lifeways is contained in refuse disposal areas" (**Ibid.** 27). Wirth Associates observed that the waterlogged soil, "has served to preserve organic remains to a high degree. Wood, leather, bone, even the manure of the horses that pulled the garbage wagons, all are in a good

state of preservation. Because of preservation of organic materials, the potential for the study of dietary practices is greatly enchanced. In summary, the informational value (scientific significance) of the King and Sixth Street trash disposal area is quite high. The trash area has historic significance as a source of representative examples of nineteenth century artifacts" (**Ibid.** 27).

The Wirth Associates evaluation of the significance of the Mission Bay trash deposits is basically characteristic of many professional generalizations made about such dump sites. It will be noted that scientific information to be gained from field work and analysis of this material is for the most part unspecified and also fails to identify the **quality** of information to be gained by such archaeological evidence as opposed to similar information gained through historical archival research methods. The sole specific example given by Wirth Associates of the type of information to be gained—greater knowledge of dietary habits—is one where it is abundantly clear that in the case of San Francisco in the 1870's and '80's volumes of archival notes could be collected, to which the archaeological record might only add footnotes.

In order to justify the high cost of archaeological testing, sampling, or monitoring of such a dump site it is necessary to establish clearly the unique character of the information that an archaeological program may produce and its importance as a supplementary or special contribution to knowledge that may be gained otherwise.

In addition, it should be noted that Wirth Associates in their archival study pointed out that the proposed P.G.&E. construction area, which was to extend from 2nd and Folsom to King Street, south across the Mission Bay dump sites to the Potrero, and then south across the Islais Creek Basin, the Bay View District, and the recent Brisbane dump, "could contain a sequence of trash dumps spanning the hundred years from the 1860's to 1966; a sampling procedure conducted in conjunction with archaeological monitoring of construction could produce very valuable results: a study in changing refuse disposal patterns. With the increasing national importance of resource conservation, it seems likely that the future will see increased research into historic refuse and reuse" (Wirth 1979: 16).

Setting aside the question of whether a study in changing refuse disposal patterns conducted by archaeological monitoring is justifiable and cost-effective research, the fact is that although the P.G. & E. project (Potrero 7) was never constructed, the planned Bayside Facilities will transect at least five additional

dump sites in the course of construction of the entire sewer alignment. Among those potential sites identified in the Preliminary Survey of the Bayside Facilities (August, 1980) and in subsequent research are: (1) the Bay Street sewer connection, adjoining the N-5 Pump Station, that would appear to contain trash deposits 1882-1883, possibly containing many Chinese artifacts, as was the case with the N-5 Pump Station excavation; (2) construction along the line of Minnesota Street where it crossed the original shoreline of Mission Bay between 17th Street and Mariposa (ca. 1860 - ?); (3) construction along Tennessee Street on the south side of 23rd Street for 100+ feet (ca. 1870); (4) Tennessee Street at 24th, the site of a Chinese settlement from 1887 to 1911; (5) Tennessee Street, south of 24th to 26th Street (ca. 1919- 192?). In addition to these sites that appear to have a high probability of containing refuse from the periods mentioned, six additional areas have been tentatively identified as sites where filling and possibly dumping took place in the late 19th century up to the mid-20th century.

Therefore, it may be that research questions developed in regard to the Division Street sewer connection would become valid if seen in relation to these other sites. San Francisco, south of Channel Street, was long and late in filling. The reclamation of the tidelands water lots continued up through the 1940's. Garbage from industrial sites would be expected—even as it is observed today. San Francisco's city garbage disposal has tended to move to the cheapest available land—south; the sanitary fill in Brisbane having started in the 1930's, continues in 1981.

Evidence from Geotechnical Borings, April, 1981. Geotechnical boring logs (marked "PRELIMINARY") came to hand on April 21, shortly after the previous sections of this report were completed. Two borings were placed between the 1st and 8th of April on Berry Street, one at the intersection of 7th and Berry and the other on "Berry Street near the Channel Pump Station." Both of these borings used the rotary wash technique, which is poor from the standpoint of establishing the exact quantity and nature of cultural materials encountered. Also, the recording of cultural materials that may be of historical archaeological interest is not the primary purpose of such borings. Geotechnical borings, therefore, are useful for establishing depth of fill—and the presence of cultural materials if such happen to be noted. Absence of data on cultural materials, or scanty data, cannot by itself serve to determine conclusively the quantity, much less the quality or specific character of cultural remains.

Despite the above qualifications, the two borings suggest that contract filling, with some admixture of casually dumped material, went into the Berry Street fill, at least at the points tested. Curiously, the 7th and Berry fill contains four distinct layers of basic fill material: a superficial level (about 2 feet) of black sandy gravel with a diverse admixture of "minor" cultural materials, then peaty clay, gravelly peaty sand, and black and dark gray oily sand. Some wood was found in all layers, including wood and small brick fragments at the bay mud level (C.B. -12).

The location of the site, as seen on the 1882 U. S. C. & G. S. manuscript survey, suggests that material dredged from Channel Street may have formed much of this fill.

The boring on Berry Street near the Pump Station indicated only one major type of fill below the first two feet of subsurface grading material--sand, with some gravels, black and oily and very loose to moderately dense. Wood and peaty material with some shell were noted at 10 feet, bay mud at 13 feet.

Three samples were taken from historical levels on both borings (#5-19 and #5-20). Examination of these samples by the consultants proved archaeologically inconclusive.

Potential Maritime Cultural Resources in Berry Street

As is shown by the filling on 7th Street and the detached bridge structure on the April-May 1882 manuscript map, as well as by other archival evidence cited above, the period of 1880 to 1887 (when the Sanborn maps show 7th Street complete to South Channel Street, and shipyards located south of Berry Street between 6th and 7th) witnessed comparatively rapid filling and land-form transition in this area. As the unexpected discovery of the whaler **Lydia** in the former Pacific Mail Basin on King Street in June of 1978 so dramatically illustrated, it was during a short period of landform change--in this case the building of the new seawall even while the Pacific Mail Dock continued in use--that a vessel was sunk and abandoned. During the long previous history of the Pacific Mail Basin, an abandoned vessel would have been an obstruction or at least a nuisance, and consequently would have been removed.

A sunken watercraft along the line of the Division Street Connection would have presented just this sort of obstruction--except perhaps during this period of transition, around 1882. The 1882 manuscript resurvey shows a cluster

of three structures south of King Street and west of 7th Street, with a wharf probably associated with the use of the buildings fronting on Mission Creek channel. This demonstration that navigation was going on at least up to around 1880 introduces the distinct physical possibility of the abandonment of some vessel in the area.

Any small watercraft abandoned at this period, such as a 30-ton cargo-carrying sloop, would very probably be a find of National Register significance. No archival evidence has come to hand that indicates the presence of any vessel or craft abandoned in or adjacent to the proposed Division Street connection excavation. However, it must be pointed out that the archival evidence for the presence of the Gold Rush ship in Levi's Plaza and the whaler **Lydia** in King Street consisted entirely of one brief 1852 newspaper item in the case of the former, and 3- or 4-line newspaper items in the case of the latter. The Levi's Plaza ship item was discovered in the course of the archival study; it took hundreds of hours of research **after** the discovery to locate the items about the **Lydia.**

Berry Street in 1981—Surface Structures

The asphalt paving is new along Berry Street and does not reveal extensive underlying paving of basalt paving blocks. Municipal reports record contracts for paving 7th Street in 1880 from Bryant to Brannan with basalt blocks; 7th Street from Townsend to Berry was paved with basalt blocks in 1894; Berry Street from 5th to 6th streets was basalt paved in October of 1892. The precise date for the intersection Division Street pavement has not as yet been found in the Superintendent of Streets contract lists, but the above dates give a clear indication of the time and extensiveness of the work.

Seventh Street brick warehouses are in the process of restoration, on the northwest corner of 7th and Townsend, with an additional large warehouse, built by the Southern Pacific Company and dating from the turn of the century, at the northwest corner of 7th and King Street. (See Plate 72.) The structure on the northwest corner of 7th and Berry Street is a corrugated iron structure that just partially appears in a photograph in 1924. It is of no architectural merit and has no particular historic signifcance.

Impact of Proposed Construction on Potential Cultural Resources

Dump Site: The 31 foot depth of the proposed Division Street Connection will completely remove a cross section of fill and containing any dump site cultural materials that it passes through. A 30-foot cross section, about 400 feet long, will be removed in the process of construction excavation.

Sunken Watercraft: The Division Street connection excavation would appear most likely to encounter any sunken hulk from 50 to 150 feet west of 7th Street and 70 to 220 feet east of 7th Street. (Although the remote possibility of encountering a hulk in the intervening section cannot be ruled out.) The depth of the excavation is sufficient to completely destroy any remains encountered.

Basalt Paving Blocks: The surface section of the excavation would remove any basalt paving blocks encountered. The geotechnical borings of April 1981, do not note any basalt paving under the asphalt.

ARCHAEOLOGICAL EVALUATION AND RECOMMENDATIONS FOR DIVISION STREET SEWER - David A. Fredrickson and Vance G. Bente

Refuse disposal sites, the result of discard activities of either individual households or cities, are among the primary sources of historical archaeological data. Because size and site specific attributes vary from site to site, each resource must be considered with respect to its individual characteristics and to the research questions which investigation of the site would appropriately address. Additional consideration must also be given to whether the site is representative of a class of similar phenomena as well as the potential for data loss if the site is destroyed without proper investigation.

Given a city as cosmopolitan as San Francisco in the late 1870's and early 1880's, segregation and analysis of materials from municipal dumps with the aims of defining ethnicity, social or economic class, consumer behavior, or even neighborhood sources require careful sampling focused on refined research criteria that are suited to the data. Given the character of municipal dumps, these research criteria are most often generalized and sacrifice the investigation of individual or specific populations for identification of general trends. Regardless, these avenues of research assume only nominal disturbance of the resource and the potential to obtain a representative sample.

By 1878 the dump site at Sixth and Berry Streets, to the northeast of the present study area, had taken on the appellation of the "dumping ground of

Plate 72: 7th and Berry Street, looking north towards Townsend, March 20, 1924...This street improvement probably involved the Southern Pacific operations in the area. Workmen appear to be removing the basalt paving laid down in the 1890's. The large brick warehouses, seen at the left, are at the northwest corner of King and 7th Streets. [Bancroft Library]

the city" with as many as 300 wagon loads of refuse brought in daily. Similarities in the landform of Seventh Street extending southwest of King and Berry, as depicted in the 1882 Coast and Geodetic Survey map, suggest that disposal activities may have been occurring here as well. However, the historic record contains evidence that Seventh Street from Berry to King was filled with earth under city contract. Thus, Seventh Street to southwest of Berry may have been filled either under contract, by dumping of refuse, or both. A single auger boring, made in April, 1981, seemingly supports contract filling. The cultural materials encountered were less in number and of a different character (i.e., peat, wood, and shell) than would be expected from substantial refuse disposal, although some debris was encountered in the uppermost few feet. That draymen might choose to dispose of waste along Seventh Street, owing to a congestion of wagons on Sixth Street, is a reasonable conjecture, and the irregular landform depicted in the 1882 U.S.C.&G.S. map might support this interpretation. Records of this activity, however, have not been recovered.

If refuse from a relatively broad cross-section of the city was indeed dumped at Seventh Street, as it was at Sixth Street, the completeness and integrity of the dump itself must be evaluated. Given the thoroughness with which arriving refuse was reportedly scrutinized and scavenged at the dump, a question arises regarding the site's completeness and integrity. Even assuming that the scavenging operations at the dump were only partially as thorough as reported, the result of this process would be not only the removal of selected materials, both organic and inorganic, but also a presumably thorough mixing of materials from different wagon loads. Thus, the depositional context itself would have been irretrievably lost and remaining materials would be heavily biased in type and quantity. Despite the probability that some goods would have been overlooked, buried prior to scrutiny, or deposited after scavenging had ceased, as indicated by the 1979 Sixth and Berry streets monitoring program in which bottles, ceramics, and bone were recovered (Wirth and Associates 1979:25-27), the value of these materials is compromised because meaningful generalizations cannot be made without a more refined notion of their representativeness.

In sum, no historical documents have been recovered that verify refuse disposal at the Seventh and Berry streets location. Even if this area were part of a city dump, historical references strongly support the conclusion that the discarded materials were heavily scavenged. Results of the April 1981 boring appear to support the inference that significant cultural materials are not present

at this location. Therefore, it is concluded that a significant cultural resource is not likely to be present at Seventh and Berry Streets. Even if refuse was present, it is likely that its depositional integrity would have been lost due to scavenging activities of the period and its research potential lost or seriously diminished. No recommendations for preconstruction testing or construction monitoring appear warranted.

Remains of Watercraft or Deposits of Cultural Materials of Significance Encountered During Construction.

Archival research has not located any buried watercraft or cultural resources of probable National Register significance in the construction area of the Division Street Connection, but has pointed out the potential sensitivity of the area to such archaeological remains as watercraft abandoned in the late 1870's or early 1880's. In the event that finds of such significance should be encountered in the course of excavation, a qualified Principal Investigator, or his designated Co-Investigator with special expertise in the field of historic archaeology, shall be empowered with the authority to direct an immediate cessation of construction activities which might impact the above mentioned cultural resources which have been encountered within the Division Street Connection project. In the event that such an occurrence takes place, the Principal Investigator shall within seventy-two (72) hours produce a preliminary report which describes the nature of the find and its archeological significance and which makes recommendations for procedures to mitigate the adverse impact to said cultural resources by the continuation of construction activities. The City and County of San Francisco shall assume the responsibility of taking whatever actions are required to ensure that adequate mitigation measures are undertaken and completed according to existing federal and state statutes, regulations and precedents before construction activities again commence within the Division Street Connection project.

Instruction of Construction Personnel. The Principal Investigator or his designated Co-investigator shall have the responsibility of informing the resident engineer, the construction crew chiefs and the foreman as to the value of historical archaeology in general and its specific relationship to the Clean Water Program. In addition, the Principal Investigator, or his designate, shall describe the types of material remains that would constitute rare or unexpected finds from an archaeological standpoint. In conjunction with the Principal Investigator and the

Co-investigator, the resident engineer shall have the responsibility of ensuring that no unauthorized collections of cultural materials be made at any time during the excavation for the Division Street Connection by members of the construction crews or other individuals. The resident engineer shall also have the responsibility of noting the locations of any cultural materials that are discovered.

Construction Excavation Inspection Program: In order to insure the successful cooperation of the contractor and construction inspection personnel with the goal of avoiding adverse impact on unanticipated finds of National Register significance, the Principal Investigator or his designated associate will conduct a maximum of four on-site inspections during construction. (Continuous on-site monitoring is not recommended.) The purpose of these inspections, which will each require 2-4 hours' time, will be in part to check historical data against the physical reality of the site as it is exposed during construction. Times of inspection will be selected by the Principal Investigator in accordance with the progress of the construction program. A brief summary report of the inspection program will be made, as appropriate to the observations of the Principal Investigator and the needs of the Clean Water Program.

THE NORTH SHORE OF THE NORTHERN BAYSIDE FACILITIES

The present plans for the North Shore Wet Weather Force Main call for the construction to be almost entirely within the existing sewer box along the present day Embarcadero on San Francisco's northeastern waterfront. There are two exceptions: (1) one portion of the force main calls for an open-cut excavation to a depth of approximately -23 to -15 feet for a 48" pipe on Bay Street from Kearny to the Embarcadero; (2) an additional open-cut section, at the southernmost part of the force main, runs along The Embarcadero from Howard Street to Folsom, and then turns west for one block from The Embarcadero along Folsom Street to Stuart Street. This latter construction is planned for a 48" force main at a depth of approximately -13 feet.

Because the large part of the North Shore Wet Weather Force Main is **within** the existing sewer that was built as part of the North Shore and Channel Outfalls Project, there is no need for discussion of impact to historical cultural resources, either subsurface or above ground. With the possible exception of the Belt Line Railroad tracks, which were removed and replaced along The Embarcadero on previous sewer construction, no impact to any cultural resource is anticipated. As the Belt Line tracks are planned for use in surface rail/trolley traffic as part of the master plan for the City of San Francisco waterfront development, these would be replaced as encountered.

Bay Street. The first accurate map of San Francisco's city front shows Bay Street to have been in deep water in 1852, thus effectively eliminating any possibility of prehistoric remains. Map 14 shows the area of proposed construction in 1857, directly out the line of Kearny Street projected into the Bay. (The tip of Bay Street at the Embarcadero was at 4-1/2 fathoms.) A small amount of

filling was already projecting into the narrow beach at the northernmost foot of Telegraph Hill and two small structures can be seen on the beach on the present line of Kearny Street.

Based on the information of the 1852 and 1857 Coast Survey charts, we can effectively eliminate the possibility of any cultural resources from the Spanish-Mexican and early American period through the Gold Rush and the cut-off date of the 1857 map (which was published in 1859). The next accurate map of the Bay Street area was published in 1869, and although the progress of fill had slightly extended, the section of Bay Street from Kearny to The Embarcadero remained almost the same as shown in 1857. Nothing in any photographs or birdseye views has been found to contradict the graphic information of these Coast Survey Charts.

The first indication of development along Bay Street was the introduction of the Merchants Dry Dock in 1869 (just after the Coast Survey Map was published). A wharf was built down the south side of Bay Street from Kearny to the floating dry dock. This wharf and dry dock is clearly shown on the proposed seawall construction.

The Merchants Dry Dock can be seen in Plate 13 of **The San Francisco Waterfront** in full operation in 1875, as the tug **Monarch** was being launched in Cousins' shipyard. James C. Cousins was the superintendent of the dry dock and the master shipbuilder of the North Point yards. The floating dry dock was towed away to Hunters Point in 1879 to make way for the building of the new seawall Section 1. The quotation below explains the need for the new seawall.

> As early as 1871 it was realized that the location of the seawall was not the most advantageous, as the wall set up a series of traps which caught the vast amount of sediment being discharged into the Bay. The first and only complete remedy that suggests itself is to modify the line of the waterfront so that it shall conform to the general directions of the currents of the Bay (Board of State Harbor Com. 1871: 23)

The first section of the new seawall was proposed "to commence at the intersection of the easterly line of Kearny Street with the waterfront line and was to run 1000 feet westerly. . . . In August, 1878 plans were completed and bids were advertised" (San Francisco Port Authority Scraps).

A full description of the "old seawall" sections between Mission and Pacific streets and between Vallejo and Union Streets is described and shown on historic maps in the **San Francisco Waterfront** survey for the North Shore and Channel

MAP 14

NORTH WATERFRONT

U. S. COAST SURVEY

1857

Outfalls and, therefore, no further description is felt to be needed here. Bay Street construction will not encounter any portion of the old seawall. The present day Embarcadero was built on top of the new seawall (started in 1878) and a full detailed description of this construction together with historic maps also was completed in the work cited above.

The Possibility of Encountering Subsurface Rock and Pilings. Since Section 1 of the new seawall, begun in September of 1878 and completed in May of 1880, ran west from Kearny Street along the line of The Embarcadero, and Section 2, begun in November of 1878 and completed in April of 1880, ran east from Kearny Street, there was no need for any temporary protective rockfill along Kearny Street to prevent erosion of fill behind the new seawall (Dow 1973: Appendix). However, some mention should be made of O'Neil's Rock, which was located just off shore in 1877, directly in line of Kearny Street. The rock is visible in the 1877 birdseye view drawn by Gifford and used as Plate 17 in **San Francisco Waterfront.** It gained its name, and some sort of notoriety, when a San Francisco policeman by the name of O'Neil committed suicide by jumping off the rock into the deep, fast moving water at the northern foot of Telegraph Hill.

The only evidence of the size of O'Neil's Rock beyond the birdseye view of 1877 is the "Generalized Subsurface Profile" of the area showing boring #185-D, 10A just north of Kearny Street. In this profile, made for soil test purposes, the idealized profile shows a pryamid shape that would indeed be O'Neil's Rock. (See the Appendix of **The San Francisco Waterfront** following page 718.)

The wharf that led to the Merchants Dry Dock during the period of its operation from 1869 to 1879 would undoubtedly have been constructed with many heavy pilings. Because it runs the full length of the south side of Bay Street from Kearny to The Embarcadero, the remains of this wharf would probably have been left in place and fill added when the street was brought to grade in the late 1880's. Previous experience with construction on early San Francisco sites containing pilings—even those put down as early 1854—show the pilings to generally be in very sound condition. This requires their removal for any kind of deep excavation process, as the one contemplated with the Bay Street section of the North Shore Wet Weather Force Main.

The Potential for Chinese Artifacts on Bay Street: The most provocative view of the proposed excavation site may be found in Plate 73, taken in 1882 or 1883. This view shows the 1,870 foot grain shed that was built on top of Section 2 of the seawall. The masts of ships can be seen at the lower right, as the big sailing ships pulled alongside the grain wharf to load directly from the grain shed. The 1880's marked the height of California's great boom in "white velvet" flour made from the wheat grown in the Sacramento and San Joaquin valleys, and the entire length of the waterfront in this area was apt to be full of ships from Europe and Great Britain lying in stream or loading sacks of wheat for European millers.

The large pond was known as the "Slough of Despond" according to some accounts, and it is important to us, as it indicates the late and slow pace of filling behind the seawall. The planked road, leading to the grain warehouse, marked the end of Montgomery Street (far right); the edge of the Eureka Grain warehouse roof can be seen at the bottom of the view. Kearny Street (at the far left) led past the two-story, peaked roof house at the foot of the causeway across "The Slough of Despond." The extreme far left of the view shows the Seawall Hotel, which faced on Bay Street in 1887, about 50 feet from the intersection of Bay and Kearny (Sanborn Map, 1887). The backyard of the Seawall Hotel was still a watery puddle in about 1882, and a glass reveals extensive dumping to the rear.

Because this view was analysed for the North Shore and Channel Outfalls report on the N-5 Pump Station, it was recommended that these late-filled lots blocked off by the construction of the new seawall should be tested for potential artifacts dumped in the process of intermittent filling—not necessarily contract filling.

The importance of Bay Street as a potential archaeological site is emphasized by the findings on the N-5 pump station located between Bay Street and North Point Street and Kearny Street. **Behind the Seawall** (vol. 2, 365-469) describes the artifacts taken from the N-5 pump station site in 1978. It should be emphasized that the pump station site was **inside** the property lines and not in the streets, and that factor may account for the very large quantities of artifacts uncovered in the course of construction. Artifacts from the N-5 site were attributed to dates as early as 1842 (in point of manufacture) and as late as 1906. The site was physically available for dumping purposes from the time the sections of the seawall were completed, April and May of 1880. We do not

Plate 73: Filling behind the Seawall in about 1882... The Seawall Hotel (far left) faced on Bay Street, fifty feet from the intersection of Kearny. The large number of Chinese artifacts found at the N-5 pump station makes Bay Street a sensitive area as this view shows it was both long and late in filling. [Wells Fargo History Room]

know if there was prior early city contract fill, such as sterile sand, although the 1882 or 1883 view would indicate that the watery ponds were still extensive and the dirt and planked roads leading up to this unfilled area afforded fairly easy access for horsedrawn refuse carts.

The N-5 site was so close to Bay Street that we must consider that this large excavation could have contained artifacts that were only a portion of a dump site that could have extended onto Bay Street itself. We do know that Bay Street, in the direct line of proposed excavation, had the early wharf (1869) that extended the full length of Bay from Kearny to the Merchants Dry Dock at the foot of The Embarcadero. Therefore, we might assume that artifacts could have been dropped alongside this wharf from this date forward—the dry dock having been removed to the southern part of the city front just before the seawall construction commenced. It is also possible that tidal action could have removed artifacts casually lost. After 1880 the area would have been filled with any type of fill as the depressed lots in back of the seawall offered a free place for dumping.

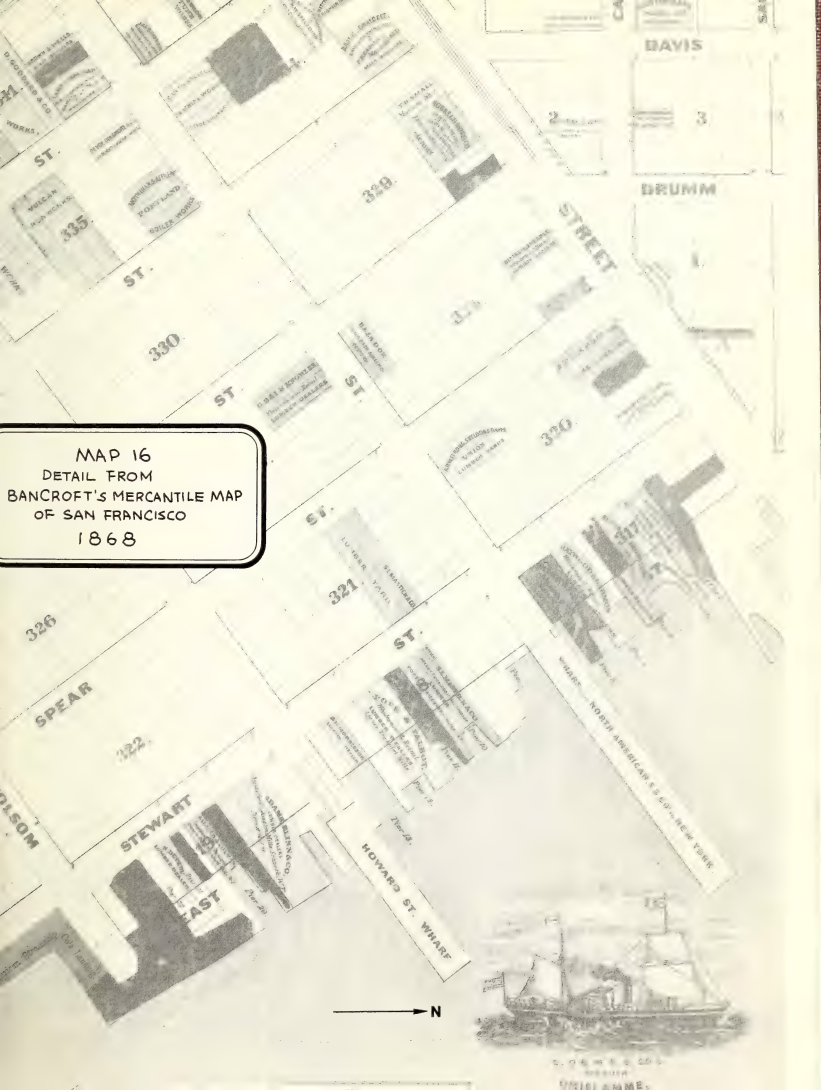
Behind the Seawall emphasizes the very large number of Chinese artifacts—particularly those ceramic wares used for food preparation, storage, or tableware. However, the monitor was removing these artifacts in the process of major construction activity during the time of excavation, and he chose the most unusual samples that were particularly appealing; therefore, a significantly higher number of Chinese fragments were saved. (Larrick, 1979: conversation.) The Anglo ware that was also saved was usually white, possibly indicating that this color attracted the monitor's attention in the dark-red brown and gray-brown soil. Certainly the very large number of Chinese artifacts is mainly accounted for by the fact that Kearny Street led directly and easily to San Francisco's Chinatown. We do not know if we are looking at artifacts from Chinatown homes or a mixture of Chinatown residences and businesses, plus a mixture of refuse from the North Beach area. As no depths are given for the location of these artifacts within the site, we cannot be sure if the age of the ceramic ware bore any relationship to where it was found in the N-5 site.

Again, it must be emphasized that this was essentially a salvage operation, and as many artifacts as the monitor could protect were put aside. In retrospect, it might be argued that given the very large quantity of Chinese artifacts the archaeologist could have called for declaration of eligibility for the National Register of Historic Places for an archaeological sampling of all of the artifacts

within some given section of the site. Whether Bay Street offers an equal opportunity to sample a large urban trash site by archaeological methods in advance of construction would depend upon preconstruction testing results.

Folsom Street. The southernmost end of of the North Shore Wet Weather Force Main begins at the intersection of Folsom and Steuart Street, proceeds north for one block to The Embarcadero and thence in an easterly direction for one block along the line of The Embarcadero to Howard Street. This portion of the North Shore Wet Weather Force Main proposed excavation was off-shore, north of Rincon Point and Yerba Buena Cove, as can be seen on the Coast Survey Map of 1852. This location effectively eliminates the physical possibility of any paleontological or Native American cultural resources, as well as the possibility of resources from the Spanish-Mexican and early American settlement up to and including the date of the 1852 Survey Map.

The area of proposed construction was, however, in relatively shallow water that was in the process of being filled by the time that the 1857 Coast Survey work was accomplished. Map 14 shows Folsom Street, from Steuart Street to the line of the "established city front" (later to become The Embarcadero) in existence as the "Folsom Wharf." Steuart Street also ended in a wharf at right angles to Folsom Street. The large black rectangular structure on Map 14, just to the southwest of the intersection of the Folsom Street Wharf and the Steuart Street Wharf, was in 1857 a warehouse owned by the Hathaway brothers, who also owned the even larger brick structure on Rincon Point farther south. Considerable confusion resulted from the early references to Hathaway's Warehouse at three different locations, at various historic times, until it was discovered that there **were** three Hathaway warehouses, one diagonally across from the Sailor's Home at the corner of Spear and Harrison that was demolished in April of 1875 in a "Giant Powder" explosion, and another smaller warehouse near the northeast corner of Folsom and Steuart. This second warehouse that lies within 50 feet of the alignment (as shown on the 1857 Coast Survey Map) does not appear on the 1869 Coast Survey Map or the 1877 Harbor Commission Map; the latter map is very precise at a larger scale for this specific waterfront and warehouse area. The Hathaway Warehouse confusion is multiplied by the existence of the present-day Hathaway's Warehouse at the northeast corner


MAP 16
DETAIL FROM
BANCROFT'S MERCANTILE MAP
OF SAN FRANCISCO
1868
DAVIS
DRUMM
STREET
ST.
339
335
330
320
321
326
322
SPEAR
STEWART
HOWARD ST. WHARF
N

of Harrison and Spear on the 1887 Sanborn Map following page 350, as well as the 1877 Harbor Commission Map. For a full discussion of Charles Hathaway and Edmund Valentine Hathaway see the **San Francisco Waterfront** pp. 350-357.

In 1868, H. H. Bancroft commissioned an artistic ad-man, Hermann Nanitz, to execute a "Mercantile Map of San Francisco." Its purpose was the selling of advertising "display" space on this map locating the various important businesses in the financial heart of the city. A manuscript copy of the map at the Bancroft Library at Berkeley shows various penciled-in businesses that were eventually either erased or elaborated upon in the published version (Map 16). Because the lithographed map has been colored, it is not possible to get a clear reproduction print of the specific area of proposed construction, but this 1868 map is included because it gives a very clear picture of businesses along the contract area, including the scale and the unusual direction of the wharves and slips. Folsom and Stuart Street came together on the map to form two wharves at right angles. The very dark portion of Map 16 in this area belonged to the California, Oregon, and Mexican Steamship Company, and the dotted line indicated the mooring space for the company's sidewheel steamer, **Oriflamme**, which is just sailing away in this interesting view. The dark "L"-shaped leg of the wharf that extends south was also a part of the C.O. & M. steamship operation. The present day Embarcadero was called East Street at the time this Mercantile Map was issued.

Some of the most important financial names in San Francisco owned or operated from these wharves shown along the line of East Street from Folsom to Howard. Adams, Blinn & Company operated lumber schooners out of wharves 15, 16, 17, and 18. I. H. Knowles ran lumber schooners out of pier 19. Glidden and Coleman operated out of pier number 20. The Coleman, in this instance, was the very famous San Francisco capitalist William T. Coleman, the organizer of the Vigilance Committee of 1856. It was of Coleman that Hittell wrote in 1882: "If any old resident of San Francisco were asked to give name of the leading merchant in the city, he would probably mention William T. Coleman. Perhaps others have done as much business and have as much capacity and experience, but no other has been made so prominent by a succession of circumstances. . .(here Hittell describes Coleman's Vigilante fame which 'drove the rogues from office'). In 1856, Mr. Coleman established a line of clipper ships between San Francisco and New York, and for a long time it occupied a considerable place in the shipping of the port" (Hittell 1882: 216-217). Some

of the considerable shipping of W. T. Coleman landed and departed from this Steuart Street Pier seen on Map 16. (A more complete discussion of this famous San Franciscan may be found in Olmsted and Watkin's **Mirror of the Dream**, pp. 89-93.)

The "L" shaped wharf at the terminus of Folsom and Stuart remained much the same up until 1887 South of Market historian Roxburgh recalled the mid 1870's and early 1880's, and the activities of the California, Oregon, and Mexican Steamship Line. The Folsom Wharf was commonly called the "Oregon Dock" because of the extensive coastal trade:

> Next comes what was called the Oregon Dock, where steamers returning to Portland, Eureka, Victoria and Mexico used to trade. When the steamers were loading, the dock was full of freight, and trucks laden with cargo would extend along the roadway for three or four blocks waiting to deliver their loads. These steamers brought in wool, potatoes, apples, and grain. Now and then some Indian chief would come down from Portland or Victoria. You could see many a one going home with a load of potatoes. At the dock the vessels from Tahiti would come laden with oranges and bananas. The oranges would be sorted out on the dock, and those slightly specked would be thrown overboard. How the boys from Tehama School and surrounding neighborhoods woud gather at the wharf and start fishing for oranges. Oranges were high priced then, but the boys got theirs without prices, as all it required was patience in fishing, and the boys had that (Roxburgh 1933: 17-18).

By the time the Sanborn maps show the wharf area in 1887, Claus Spreckels owned Folsom Street Wharf #1 at the foot of Folsom Street, where he operated the Oceanic Steamship Company to Hawaii. Spreckels was a self-made millionaire who came to the United States from Hanover. He first clerked in a grocery store which later he bought and ran for five years in Charleston, South Carolina. Selling out and moving to New York, Spreckles then decided that San Francisco offered more opportunities for a hard-working and farsighted business man. In San Francisco, in 1856, he started with a corner grocery store and then operated his own brewery, and by 1863 he had enough capital to start the Bay Sugar Refining Company. This he sold at a tidy profit, and he embarked for Europe where he studied the refinery process by working as a laborer in a sugar mill before returning to San Francisco and opening his own large refinery at 8th and Brannan.

According to Hittell, Spreckels did what he could to prevent the United States from establishing a Reciprocity Treaty with Hawaii which he thought would damage the U.S. beet-sugar business, but when the treaty was ratified he

left for Hawaii and made arrangements to buy out planters' sugar crops, and purchased a large section of Maui that was considered too dry for cultivation. Back in San Francisco, Spreckels hired the chief engineer of the Spring Valley Water Company to survey his Hawaiian property with an eye to building a suitable irrigation system. With "700 tons of plate iron from the Risdon Iron works, 400 men, 100 head of oxen and 60 mules at work under the guidance of competent managers and foremen" he built an irrigation system on his Maui land that crossed 31 large ravines "some of them 2,000 feet wide and 400 feet deep." The system took 12 months to build and required the transport of "80 tons of lead to keep the pipe joints tight. . .several million feet of Coastal lumber. . .many tons of dynamite. . .and was put in place by San Francisco laborers and mechanics" (Hittell 1882: 547-549). The 3,000 dry acres of Maui became the basis of the Spreckels sugar empire which grew to include mills in Hawaii, the big refinery of the Potrero, and the Oceanic Steamship Company to transport the sugar to San Francisco. King Kalaukua recognized Yankee enterprise as a benefit to Hawaii and saw fit to decorate the man who had originally tried to stop the trade treaty that made it all possible (**Ibid.**).

The Folsom Street Wharf was removed and rebuilt by the time the 1896 Harbor Commission map was issued. Considered one of San Francisco's most modern piers, it became the Army Transport Dock and was used to embark troops to the Phillippines. "In addition to Folsom Street Wharf #1, Steuart Street Pier 20 was assigned" for military use (H. Com. 1900: 6).

Late Filling of the Folsom Wharf Area. Folsom Street from Steuart to East Street in 1887 consisted of small shops, saloons, restaurants and boarding houses for the sailing trade. Most of East Street to the west was occupied by the Somers and Healy and Scott and McCord hay barns, still on pilings. The rest of the planked area over the water was open stacks of lumber belonging to J. W. Wesson and Simpson Brothers' lumberyards.

As late as 1912, Steuart Street was still planked and on pilings. The waters of San Francisco Bay extended back under the planked streets. As Roxburgh recalled, "Bear in mind, that Stuart Street from Market to Howard, was only built on one side, the east side being all lumber yards, or what were called piers, the vessels coming up to the piers and discharging their cargoes alongside the pier, the bowsprit of the vessels often extending back under

the street quite a distance. All of the streets being planked over with water. There was no Embarcadero, it being San Francisco Bay until filled in years later" (Roxburg 1930: 5).

Captain Fred Klebingat recalled from the year 1912, "East Street was all plank for part of a block between Howard and Folsom. The rest was all cobblestones. In the Castle Saloon, on East Street, a few doors from the corner of Folsom, when you went out in back to use the bathroom, you saw the water below and the beach" (Klebingat ms. 1975).

The Embarcadero came into existence in the place of East Street when section 9a of the new seawall was erected from the foot of Mission to the foot of Folsom Street. The construction contract for this section of seawall was let on January 4, 1913, and the section was completed on November 27, 1914 (Dow 1973: appendix).

The Potential for a Sunken Hulk in Folsom Street. Although the wharf area was long and late in filling, any sunken hull of a ship would probably have to pre-date the 1857 Coast Survey Map (Map 14). The logic of this reasoning is that the constant use of the wharf after 1857—for the coast lumber trade, by the California, Oregon and Mexico Steamship Company, later by Spreckel's Oceanic Steamship Lines, and finally as the U.S. Army Transport Docks--would all deny the presence of a submerged wooden hulk large enough to impede this commercial and military shipping. However, this does not prevent the possibility of an earlier wooden ship from the period 1850-1855 being abandoned there. Unfortunately, the first hydrographic chart yet discovered that covers this area with numerous soundings is dated 1857. This ms. chart does show two abandoned hulks just south of Hathaway's Rincon Point Warehouse, clearly labled "Hulk" by the Coast Survey. But by 1857 the wharves shown on Map 15 were already in place.

What is of interest is the location of Charley Hare's ship-breaking operation of the early 1850's on "Rincon Point." The many marine ways and scatter of very small houses between First and Second streets, north of Brannan and south of Bryant, may mark the general location of Hare's operation, which employed Chinese workmen to dismantle the wooden hulks and burn the remains to be sifted for "yellow metal" fastenings. But it is also possible that this was Hare's operation as of 1857, towards the end of the ship breaking period. During the earlier times he may have been using the north side of Rincon Point—within some 50 feet of the Folsom Street alignment.

Soundings of the published 1853 U.S. Coast Survey Chart would seem to indicate that the water depth was between 4 to 6 feet—and during high tides 6 to 12 feet. Because early daguerreotypes show a very large number of abandoned ships of the Gold Rush fleet resting on the mud flats in this cove in this area, we have to consider the possibility that some of these vessels were used as storeships, abandoned, and left for fill. The rapid growth of the city between 1852 and 1857 is attested to by the U.S. Coast Survey charts that are known to be accurate representations.

We do know that this Gold Rush period saw a great shortage of both wood and labor for construction in San Francisco. Frederick Griffing used a storeship to build his wharf alongside his warehouse at the foot of Telegraph Hill in July of 1852:

> ". . .a large portion of Griffin's (sic) wharf is most ingeniously constructed by planking over a wooden hulk. We understand that the owners have it in contemplation to carry out the wharf two ship's lengths further by means of this admirable contrivance. Meanwhile between the wharf and the shore the lots are becoming filled in, and the wharf will ultimately make an admirable bulkhead" (**Alta California**, July 10, 1852).

The Griffing ship was located from the article above, and subsequent archaeological investigations revealed that the ship was intact and in excellent condition. Although the name is not certain, the ship was nominated to the National Register of Historic Places because of its age and excellent physical condition. Whether this was a totally unique occurrence in San Francisco wharf-building during this Gold Rush period, or whether readers of the **Alta** followed Griffing's example, is a matter for conjecture.

Gold Rush ships were resting on the mudflats in this location in 1850-52. Charley Hare's ship breaking operation cannot be precisely located, but it was nearby. Accounts of the precise location are too loose to pin down his site on a map with sense of certainty, nor is it certain that he stayed in the same location for the full time of his ship-wrecking operation. Furthermore, if a Gold Rush hulk were abandoned in the line of Folsom Street, and filled over for the 1857 wharf, it would not have impeded later shipping on wharves that kept extending eastward to the present line of The Embarcadero.

for the 1857 wharf, it would not have impeded later shipping on wharves that kept extending eastward to the present line of The Embarcadero.

For the reasons cited above, we would have to say that although the likelihood is not high for such an occurrence, the physical possibility of such an abandoned hulk is real, and should such a substructure be discovered it would be a very old ship and of great historical importance.

ARCHAEOLOGICAL RECOMMENDATIONS: NORTHERN BAYSIDE FACILITIES

by David A. Fredrickson

Mitigation procedures described in the following section are the recommendation of the consulting archaeologist. The procedures that will actually be employed are subject to approval by the State Water Resources Control Board, the Environmental Protection Agency, and the Advisory Council on Historic Preservation. Because of current uncertainties about funding, the final decision about mitigation will not be resolved until funds are available for design and construction of the proposed facilities.

The analysis of the potential for prehistoric sites of the Northern Bayside section has identified areas of sensitivity that are subject to impact by construction of the proposed facilities. There is, however, no direct nor indirect evidence of the physical presence of sites similar to the Nelson sites or the Griffith-Shafter Shellmound located in the Sunnydale/Yosemite construction area. Given the size of the sensitive areas, a testing program such as the one that located CA-SFR-7 and the Griffith-Shafter Shellmound would not be appropriate.

The areas of prehistoric archaeological sensitivity have been identified, in consultation with Resource Consultants, from examination of the 1852 and 1869 U.S. Coast Survey maps with reference to environmental variables associated with prehistoric site locations—proximity to fresh water, location near sea-level food sources, and the transition between different environmental zones. The presence of early (i.e., late 1850's and early 1860's) isolated buildings has also been noted because of their frequent association with wells, and thus often with springs, dating to prehistoric times. It should be noted that some prehistoric sites did not show cartographic indicators of sensitivity; therefore the areas identified below as "sensitive" do not strictly limit the possible locations for encountering prehistoric sites.

Because of the particular circumstances of the potential sites that will be identified below, a construction monitoring program is recommended. On the basis of past experience in monitoring large construction projects, the Principal Archaeological Investigator holds the opinion that when archaeological resources are encountered under such conditions, significant damage cannot be avoided.

The major aim of such a monitoring program would be the identification and recording of the buried archaeological resource. Data recovery in the conventional sense would be implemented to the degree that it is feasible to coordinate an adequate salvage program with ongoing construction work. For example, emergency salvage might take place on weekends or after normal working hours, or it may be feasible for the contractor to move major operations to a point clear of the resource area without incurring unduly costly delays.

The recommended monitoring program would be conducted as follows: 1) The archaeological technician would make daily visits to the identified construction sites and would be authorized to observe earth removal as well as to examine wall profiles exposed during construction as deemed appropriate; 2) If materials of archaeological interest are unearthed, the technician would notify the Principal Archaeological Investigator (PAI), who would himself, or if unavailable for legitimate reason would through a delegated representative with training and experience sufficient for certification by the Society for Professional Archaeologists, visit the site to evaluate the finds; 3) the PAI would determine whether emergency salvage was pertinent and, in consultation with Resource Consultants, the City, and the contractor's representative, would arrange for such work to be done. Only if greatly significant archaeological remains were determined to be present—e.g., cultural materials in association with extinct megafauna or otherwise suggestive of the Paleoindian period—would a delay in construction in the site area be requested. As suggested above, a descending order of data recovery and recording work would be appropriate to a site of lesser apparent significance, as deemed appropriate by the PAI and the identified consultants.

Sites of Prehistoric Sensitivity

Mariposa Facilities. Areas that should be subject to the monitoring procedures outlined above are the following:

1. Illinois Street, from approximately 450 to 500 feet north of 23rd Street.
2. Illinois Street, from approximately 1150 to 1250 feet south of Mariposa Street.
3. Mariposa Street, between 3rd Street and Tennessee Street.

Channel-Islais Transport. Areas that should be subject to the monitoring procedures outlined above are the following:

1. A section of 1100 feet of the Tennessee Street alignment should be monitored. This section extends from approximately 1340 feet north of the end of the alignment at 26th Street to a point approximately 200 feet north of 22nd Street. In this area, historic features of potential importance also occur, such as the Tubbs ropewalk of the 1850's, and dwelling sites of the 1860's. A monitoring map of the 50 foot-to-one-inch scale, as described for similar circumstances in the Hunters Point boatyard and farmstead site areas, should be prepared in advance of construction. Accurate identification of subsurface structures encountered can be most cost-effective in preventing needless delays for examination of puzzling but unimportant features.
2. Tenneessee Street from Mariposa Street 600 feet southward.
3. Mariposa Street from Tenneessee Street to Minnesota Street, and along the line of Minnesota Street 200 feet northward. The 200 feet along the line of Minnesota Street also transects a potential dumping site of the 1860's, as described below.

Historical Archaeological Recommendations

Identified locations of potential historical archaeological remains in the Northern Baside facilities areas fall into categories that have been commented upon in previous archaeological recommendations sections of this study (i.e., Sunnydale/Yosemite and the Division Street Connection). These resources consist of different types of dumping sites, possible areas of sunken hulls of vessels or watercraft, and shipyard.

Illinois Street Shipyard Site. The site of Winslow's shipyard, near Illinois and 20th streets, is comparable in age to the site at Keith and Evans Avenue. It dates from 1868 at the latest, and forms part of the set of five shipyard sites of the late 1860's to about 1880 that appear subject to impact by the proposed Hunters Point, Mariposa, and Islais Creek facilities. The area of potential deposits of cultural materials in Illinois Street associated with Winslow's yard extends from approximately 20 feet north of the northerly line of 20th Street to a point about 125 feet south of the southerly line of 20th Street. The area

of highest probability of encountering deposits associated with the yard is the 75 feet south of the southerly line of 20th Street.

The recommendations for monitoring of this area overlap with the recommendations for prehistoric monitoring of this point where Illinois Street crosses the original northern shoreline of Potrero Point.

Procedural Recommendations. The procedures for recommended construction monitoring have been outlined in recommendations for similar sites in the Sunnydale/Yosemite--Hunters Point area. They will be recounted here in the same general form, in order to avoid any confusion as to the procedures that are recommended. These procedures should apply, when deemed appropriate by the Principal Archaeological Investigator, at any monitoring locations, or in the case of unexpected discoveries during the course of construction excavation at other points.

1. Prior Instruction of Construction Personnel. The Principal Investigator or his designated Co-investigator shall have the responsibility of informing the resident engineer, the construction crew chiefs, and foreman as to the value of historical archaeology in general and its specific relationship to the Clean Water Management Program. In addition, the Principal Investigator, or his designate, shall describe the types of material remains that would constitute rare or unexpected finds from an archaeological standpoint. In conjunction with the Principal Investigator and the Co-investigator, the resident engineer shall have the responsibility of ensuring that no unauthorized collections of cultural materials be made at any time during the excavation for the Northern Bayside Facilities by members of the construction crews or other individuals. The resident engineer shall also have the responsibility of noting the locations of any cultural materials that are discovered.

2. Prior to commencement of any construction excavation, the proposed monitoring program would begin with preparation of site map overlays of successive structures and occupancy or use information at a scale of 50 feet to the inch. This scale has the virture of being identical to that of the published Sanborn maps; furthermore, as the best of the other historical maps range in scale from 1: 10,000 to 1: 6,000, the limits of their accuracy are reached or exceeded at the 50 feet-to-one inch scale (which is 1: 600).

3. If materials of archaeological interest are unearthed during construction excavation, the archaeological monitor would notify the Principal

Investigator or his delegated representative if he is unavailable. The Principal Investigator would immediately visit the site to evaluate the finds, following consultation procedures outlined in the prehistoric site recommendations.

4. Should the significance of the deposit potential, as initially revealed, lead to recommendations for ceasing full-scale construction excavation at the sensitive portion of the alignment, a research design specific to the nature of the resources encountered should be prepared. To the extent that observation of National Register significance potential is prompt, construction excavation will not only have done minimum damage to the resources, but the nature of the resources will not be available for archaeological examination.

5. Archaeologically supervised or conducted excavation may be quickly undertaken to identify structures associated with subsurface foundations, together with recording, collection, or selection of superficial artifacts as the Principal Investigator deems necessary. At the same time, identification of deeper subsurface deposits would take place. These might be privy or trash pits, or filled wells.

6. Swift preliminary analysis of artifact deposit locations and analysis of initial observations as to type and probable quantity of artifact deposits by the Principal Investigator and any assistants or consultants he requires should result in amplification of the research design referred to above (4), based on the information from preliminary controlled excavation (5) and analysis (6). The decision whether or not to continue archaeological procedures should be arrived at and justified by a research design that includes identification of resource elements and recovery potential that indicate probable National Register significance.

Remains of Ships or Watercraft. Archival analysis has not revealed the known or extremely probable location of any sunken ships or watercraft in the sewer alignments or facilities of the proposed Northern Bayside construction. At the same time, areas of potential sensitivity for such remains have been identified. Specific locations of sensitivity for these resources are as follows:

1. Mariposa Facilities. A) The entire alignment of the 20th Street Transport/Storage lies in what was a shallow-water area north of Potrero Point and immediately east of Owens' shipyard prior to filling in about 1882. B) On Illinois Street near 20th Street, H. J. Ervin's shipyard of the late 1860's was filled by 1882 or earlier. The original offshore area north of Ervin's yard, from about 125 feet south of 19th Street to Mariposa Street, as well as the area of

the proposed Mariposa pump station and reservoir, is also sensitive with respect to remains of abandoned watercraft. C) From 23rd Street 350 feet northward is an area where watercraft abandoned in the 1860's could be encountered.

2. Channel-Islais Transport. A) Tennessee Street from 23rd Street to 26th Street has been identified as an area of moderate sensitivity for abandoned watercraft. B) The alignments in former Mission Bay (from Channel Street to the end of Owens) have been identified as all being physically possible locations of abandoned watercraft, although likelihood of such remains appears low. The alignment on the line of Minnesota Street, from 250 feet north of Mariposa Street to Owens Street appears to have higher senstivity.

3. North Shore Facilities. The segment of the proposed sewer on The Embarcadero, between Howard and Folsom streets, and more particularly the segment on Folsom Street, between The Embarcadero and Steuart Street, has some physical potential for the remains of vessels. In the case of the Folsom Street alignment, any interred vessel would probably date from the 1852-1855 period. While the probability of such remains does not appear to be high, if any do exist, they could be of very high importance to maritime historians.

It has been stressed in the historical analysis that remains of smaller watercraft types—as distinguished from large 19th century wooden vessels—could be of National Register significance. For example, the origins of the scow schooner vessel type, one of the unique contributions of the San Francisco Bay Area to 19th century naval architecture, are unknown. As another case, there is no known relatively intact example of any of the once-numerous locally-built sampans or junks employed by the 19th century Chinese shrimp and abalone fisheries.

Procedural Recommendations. No practical or cost-effective archaeological field testing techniques are available to determine the existence of buried hulks under the variety of field conditions obtaining in the several areas of sensitivity enumerated above, and in the additional areas noted with regard to the proposed Sunnydale/Yosemite and Crosstown facilities. Nor does any evidence pointing to the high probability of encountering vessel remains indicate that continuous archaeological monitoring is justified.

It will be noted that some of the areas identified as sensitive are recommended for types of archaeological observation and reporting procedures

because of the concurrent potential of dump site deposits of significance being encountered. Such an association has been dealt with in the previous recommendations for the Division Street Connection.

1. Instruction of construction personnel should be undertaken by the Principal Investigator and any specialists designated by him prior to construction, and subsequent procedures should follow those recommended above and in the Division Street Connection recommendations for unexpected finds of archaeological importance.

2. In the event that what appears to be the remains of ships or watercraft should be encounted in the course of excavation, a qualified Principal Investigator, or his designated Co-Investigator with special expertise in the field of historic archaeology, shall be empowered with the authority to direct an immediate cessation of construction activities which might impact the above mentioned cultural resources which have been encountered. In the event that such an occurrence takes place, the Principal Investigator shall within seventy-two (72) hours produce a preliminary report that describes the nature of the find and its archaeological significance and which makes recommendations for procedures to mitigate the adverse impact to said cultural resources by the continuation of construction activities The City and County of San Francisco shall assume the responsibility of taking whatever actions are required to ensure that adequate mitigation measures are undertaken and completed according to existing federal and state statutes, regulations, and precedents before construction activities again commence.

Refuse Disposal Sites. The potential for archaeological significance of general municipal dump sites has been dealt with at some length in the section of this study on the Division Street Connection, excavation for which may encounter a portion of what was known as the "City Dump" of the 1870's and '80's. The conclusions were that, "No recommendations for preconstruction testing or construction monitoring appear warranted." However, it was recommended that a Principal Investigator, retained during the course of construction, instruct construction personnel regarding the legal status and importance of historical archaeology prior to the beginning of excavation, and that he or his designated associate inspect the site at appropriate intervals during construction.

These same general recommendations are appropriate to the area of the municipal dumping grounds of former Mission Bay transected by the Channel-Islais

transport. The Northern Bayside facilities alignments that are involved include all portions from the existing Channel pump station, near Seventh and Channel streets, the alignment leading south along Owens Street, to the line of Minnesota Street. It is recommended that the Principal Investigator, or his designated associate, conduct a maximum of six inspections of the type recommended for the Division Street Connection during construction of this portion of the proposed facilities.

Other dumping or refuse disposal sites within the proposed Northern Bayside facilities are of different character, as will be identified below. At a minimum, a similar program of intermittent inspection, together with communication with the Project Engineers, is appropriate to all of them. The purpose of such inspections and communication is to avoid insofar as possible adverse impact on unanticipated finds of National Register significance, and to provide information for brief summary reports, as appropriate. These summaries by the Principal Investigator of known and probable refuse disposal sites should be of substantial value for future environmental impact reviews. A case in point is the dump of high potential significance on the line of Minnesota Street north of Mariposa Street (the former southern shore of Mission Bay). Had any archaeological observation of the nearby Clean Water Project excavation been made when that section of the sewer was built several years ago, it would now be much more clearly known whether or not any monitoring of the proposed new construction is necessary.

Location of probable refuse disposal sites of the proposed Northern Bayside facilities that should be inspected by the Principal Investigator, or his designated associate, are as follows:

1. From Mariposa Street to a point 525 feet north along the line of Minnesota Street. (Note: the southern 250 feet of this alignment is an area of prehistoric sensitivity.)

2. Tennessee Street, from 23rd Street to 24th Street. The first 150 feet southward may contain local deposits from the 1870's, the remainder refuse from an adjacent Chinese village dating from the late 1880's to 1919.

3. Tennessee Street, from 24th Street to 26th Street. This is an area of very late potential dumping—1910 to 1920 or later. Archaeological sensitivity is considered low.

4. Bay Street, from the east side of Kearny Street to the west side of The Embarcadero. This site may be, in effect, a continuation of the N-5

dump site of the early 1880's. Systematic sampling or recording of the huge quantities of Chinese artifacts salvaged from N-5 was not accomplished at the time of excavation. If this Bay Street location proves to be a similar contemporary site, an appropriate sampling program that will enhance the informational value of the N-5 recovery effort may be devised.

A maximum of 12 on-site inspections of the type recommended for the Division Street Connection are recommended for the four locations listed above. Given the diversity of the sites described, it is entirely possible that one or more may contain a deposit of vastly greater coherence or significance than what is anticipated in the undifferentiated and thoroughly scavanged "City Dump" area in the vicinity of Berry or Owens Street.

If a site of potential National Register significance should be encountered, procedures appropriate to the find, but similar in nature to those recommended in the case of the 1852 farmstead site on Hunters Point, the shipyard sites, or unanticipated finds of prehistoric or historical importance should be initiated. These include cessation of construction excavation in the immediate vicinity, consultation with experts, when appropriate, and with officers of the city and the contractor, identification of the significance of the find, and preparation of a research design that promises the most effective program of mitigation consistent with the nature of the find, field conditions, and the timely resumption of construction.

CROSSTOWN FACILITIES

ols and technology may have changed, but tunneling in oving water about is an old California tradition. (Nahl ut)

THE CROSSTOWN FACILITIES

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INTRODUCTION TO THE CROSSTOWN SEWER FACILITIES

The Crosstown Tunnel and connecting sewer facilities fall into three geographical areas, as is discussed on the following pages in some detail. As proposed by the San Francisco Clean Water Program, the major portion of construction consists of a deep tunnel through what might be considered the Bernal Heights area across town to the vicinity of Lake Merced. This proposed construction connects to other facilities that include some open-cut excavations and a pump station and reservoir on the site of the unused Soule Steel Plant. Further construction is anticipated that will connect this portion of the sewer facilities in an open-cut excavation that crosses the head of Islais Creek—the Islais Transport/Storage.

Islais Creek has been discussed in the earlier sections of this survey, because other proposed construction also involved this geographical area. For this reason, frequent reference is made to these earlier sections.

We have considered (and rejected) the idea of including in this report the document, "A Preliminary Survey of Cultural Resources for Army Street Route 422-C2" (Olmsted November, 1980). It was produced for the Clean Water Program at their request as an additional alternative for construction consideration, but then this engineering alternative was discarded. However, we have used information from this preliminary report (issued in 12 copies) when it was relevant to cultural resources that might be subject to impact by a selected construction alternative—such in as the San Bruno Road area.

CROSSTOWN SEWER FACILITIES

The proposed Crosstown sewer facilities fall into three distinct construction zones, as follows:

(1) The Crosstown Tunnel bores through the Bernal Heights district and westward to Lake Merced at a depth sufficient to by-pass any cultural resources with the possible exception of paleontological remains. The Crosstown Tunnel, 10' diameter interior dimensions, begins at the site of the Crosstown Pump Station. It will be constructed by tunneling easterly on Army Street from an access shaft at Kansas and Marin. The tunnel will also progress westerly from the same shaft (a very short open cut-section will be made at the access shaft) under Bernal Heights, Lower Diamond Heights, slightly north of Mt. Davidson, and connect to another access shaft at 19th and Wawona. From this shaft the tunnel proceeds under Stern Avenue and Sloat Boulevard to an ocean outfall headworks located westerly of Lake Merced and south of the San Francisco Zoological Gardens.

(2) The Crosstown Pump Station and Islais Creek Detention Reservoir occupies the site of the phased out Soule Steel Plant. The site is bounded by Army, 25th, Missiouri and Mississippi streets. A major transport line up to 96" in diameter will be constructed by open cut along 26th Street from 3rd Street to Indiana Street. It will tunnel under Highway 280, then proceed diagonally southwest to the Crosstown Pump Station. This line will function to transport flows from north of Islais Creek to the Pump Station/reservoir.

(3) The Islais Creek Transport/Storage Facilities, other than the reservoir, will consist of a dual compartment commencing 600 feet west and ending at the head of Islais Creek. A major transport storage/overflow structure about

300 feet long by 25 feet wide by 25 feet deep will traverse the head of the creek to connect to a large double compartment transport structure (approximately 25 feet wide) which will proceed northerly, adjacent to the railroad tracks, and connect to the pump station reservoir complex just north of Army Street.

Potential Paleontological and Prehistoric Resources

On the Crosstown Tunnel the potential for paleontological resources that can be successfully examined and recovered by a qualified paleontologist is limited to chance encounters in the excavation of construction shafts. Only to the west of the Wawona Park shaft are there any geological formations likely to contain paleontological resources. (See the description of potential paleontological resources for the entire Bayside Facilities at the beginning of this volume.)

The Coast Survey Chart made in 1852 (Map 9) shows the line of 26th Street out in the Bay above Du Vree's Creek (Islais Creek). The 26th Street excavation is proposed to cross the natural shoreline at approximately the intersection of Iowa Street. Map 9 indicates that this was a narrow beach, sloping up to a 20-foot contour. No structures appear at this juncture on the 1857 survey map, but by 1869, Map 11 shows a few structures just north and west of this beach, fronting on a road that connected the scattered farms and powder magazines in this area. The presence of dwellings with fresh water supplies within 50 feet of the alignment and near the natural 1852 shoreline would indicate a relatively high potential for prehistoric resources at Iowa and 26th Street—an area late in filling, as can be seen on Map 13, in 1919.

The Crosstown Pump Station and Reservoir has also been located on Map 9. The Reservoir site has been cleared from a steep hill that rose just north of a tidal marsh area north of the mouth of Islais Creek. The Pump Station itself is planned for the lowest section at the foot of this hill that nearly touches the edge of the marsh in 1852. Map 11 shows the site in 1869 when an unnamed road passed directly over the Pump Station section of the site before turning northward. Presumably, this early road avoided both the steep bluff to the north and the marsh to the south.

As can be seen from Map 9 (1852) and Map 10 (1857), the area of the Crosstown Pump Station excavation and the Islais Creek Transport/Storage leading south from it is in an area of high prehistoric archaeological potential.

Historical Setting

Spanish-Mexican and Early American Settlement

Islais Creek was a meandering stream that drained from Bernal Heights into San Francisco Bay. It formed the southern geographical boundary of the Potrero Neuvo—meaning the "new grazing land"—and was part of the Rancho Rincon de las Salinas y Potrero Viejo. The extent of Jose Bernal's holdings can be seen most clearly on Map 3 in the first section of this Bayside study.

The name "Precita Creek" derives from the Spanish, meaning "little dam," with the strong implication that the wandering fresh water creek just north of Islais Creek (on the line of the now vanished Serpentine Avenue) had been dammed at some early date by Spanish-Mexican settlers. Precita Creek followed the north boundary of Jose Cornelio Bernal's grant, with the true boundary marked on early maps with the legend "Stonewall." The "Point of Beginning" of the survey of the Bernal ranch lands was at the Old San Jose Road, within a few feet of the south side of 26th Street. The adobe of the widow Carmen Bernal has been designated in the Bowman and Hendry adobe study as being in the line of Duncan Street—near modern St. Luke's Hospital.

The November 1980 document **Preliminary Survey of Cultural Resources for the Army Street Route** located the two stonewalls said to date from the early Spanish fathers' Mission occupation. One of these walls was located by Bowman and Hendry as terminating at the south end of Utah Street between San Bruno and Potrero Avenues. This would place the wall in an area recently covered by fill for the creation of a city park just north of the Potrero Community Center "Farm" near the Army Street interchange. "A second wall, marking the northern boundary of the Bernal Rancho would appear to lie on the line of the now vanished Serpentine Avenue—50 to 100 feet north of Army Street proper" (Olmsted 1980: 115). Neither of these Spanish archaeological sites with a potential for the National Register lies within 100 feet of any proposed excavation. The open-cut excavation considered as alternative 422-C2 in the study cited above was abandoned in favor of a tunnel in this area of the Crosstown Facilities. Again, no impact to either of these stone structures would appear possible.

The Crosstown Facilities from 1852-1869

The 1857 Coast Survey Map shows the great changes that took place in the Islais Creek Basin. The land that had been used for grazing under the Spanish-

Mexican reign was being fenced and set aside as cultivated fields. Tributaries of Precita Creek (just north of the line of Army Street) were channeled into irrigation ditches, and gradually the marsh began to be reclaimed. The presence of windmills on the 1857 chart indicated that fresh water was available for pumping to irrigate farmlands. Most of the houses were on the western side of the road to San Jose. The Pioneer Race Course was built north of Precita Creek, roughly between Mission and Harrison streets on the springy turf associated with the marshland. To the north of the Pioneer Race Track was the Union Race Course, and the whole area was under cultivation. The truck farming of this area and adjoining south San Francisco tracts has been discussed in the earlier chapters on the Chinese and their successors, the Italian gardeners.

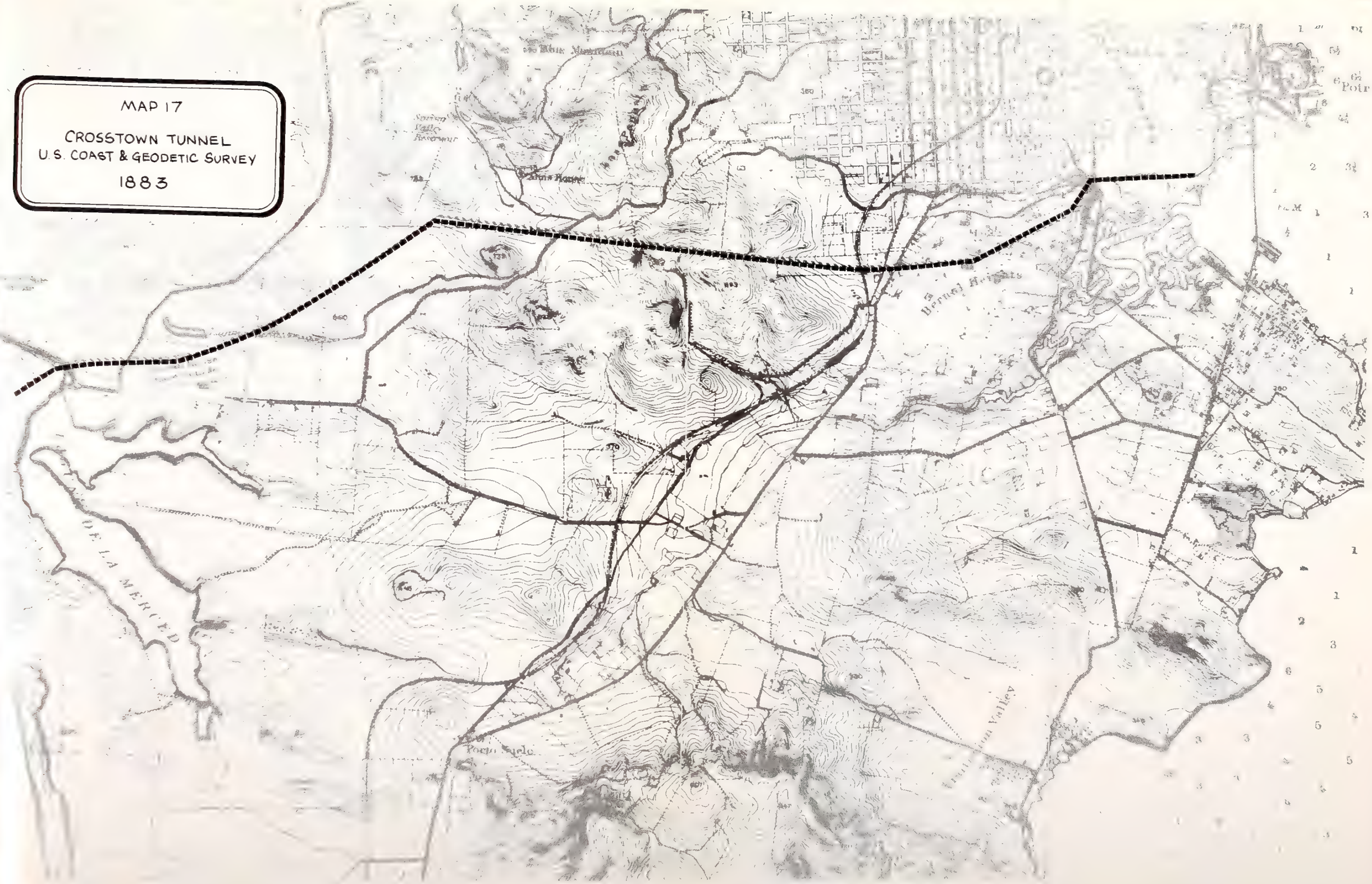
Only in one area do we find farm structures in 1857 closely associated with any of the Crosstown alignments. A scatter of small structures appears in the vicinity of present day Mississippi and Army streets. One small house, enclosed by a triangle of roads, or trails, is just to the north of Army Street. Several smaller structures (perhaps farm outbuildings) follow the line of various trails or roads to the south of Army Street. It may be that the Islais Creek Transport will pass through the remains of these very small structures—should they have persisted and been filled over. Fences that lead from the larger structure to the mouth of Du Vrees (or Islais) Creek might indicate that this farm operation was enclosed to prevent animals from straying. Possibly this house and its outbuildings had some connection with the entrance to the creek which was navigable up to Franconia Landing.

The Pump Station Site directly adjoins the Islais Transport in this low-lying juncture to the west of the present day Southern Pacific Railroad tracks from Army Street south to Marin. A slightly different picture of these structures can be found on Map 11 (1869). Whether these are the same scatter of small buildings seen on the 1857 map we cannot be sure. They appear to be located slightly to the west and south of the earlier 1857 structures. The question then becomes, which survey was more accurate? A question we cannot answer. Or are these different houses? In at least one case, yes. What is important is that this section of the Islais Transport cuts through this early settlement site that parallels the railroad tracks from Army, south to the head of Islais Creek, past the line of Marin Street.

MAP 17

CROSSTOWN TUNNEL
U.S. COAST & GEODETIC SURVEY

1883


Mount Diablo
Walnut Creek
Pacheco
Concord
Clayton
Mt. Diablo
Ygnacio Valley
Port Chicago
Pacheco Slough
Suisun Bay
Grizzly Island
Suisun Slough
Montezuma Slough
Chipps Island
Collinsville
Roe Island
Middle Ground
Sherman Island
Jersey Island
Bradford Island
Webb Tract
Bethel Island
Holland Tract
Frank's Tract
Rock Slough
Discovery Bay
Byron
Clifton Court
Old River
Victoria Canal
Italian Slough
Woodward Island
Orwood
Palm Tract
Veale Tract
Quimby Island
Empire
Tracy
Mountain House
Altamont
Livermore
Pleasanton
Dublin
San Ramon
Danville
Alamo
Diablo
Blackhawk
Walnut Creek
Concord
Pleasant Hill
Martinez
Benicia
Vallejo
Mare Island
Napa
Carquinez Strait
Port Costa
Crockett
Rodeo
Hercules
Pinole
Point Pinole
San Pablo
Richmond
Point Richmond
Berkeley
Oakland
Alameda
Piedmont
Emeryville
Albany
Kensington
El Cerrito
San Leandro
Hayward
Castro Valley
San Lorenzo
Alameda Island
Bay Farm Island
Oakland Inner Harbor
Oakland Outer Harbor
Yerba Buena Island
Treasure Island
Goat Island
San Francisco
Golden Gate
Alcatraz Island
Angel Island
Tiburon
Belvedere
Sausalito
Mill Valley
Corte Madera
Larkspur
San Rafael
Point San Pedro
Point Blunt
Point Bonita
Lime Point
Fort Baker
Fort Cronkhite
Fort Barry
Fort Scott
Fort Mason
Fort Point
Presidio
Lincoln Park
Golden Gate Park
Sutro Forest
Twin Peaks
Mount Sutro
Mount Davidson
Potrero Hill
Hunters Point
Islais Creek
Bay View
Visitacion Valley
Daly City
Colma
San Bruno
South San Francisco
San Bruno Mountain
Brisbane
Candlestick Point
Candlestick Park
Hunters Point Naval Shipyard
Alameda Naval Air Station
Oakland Army Base
Oakland Municipal Airport
Oakland Naval Supply Depot
Oakland Naval Hospital
Oakland Naval Air Station
Oakland Naval Station

The Crosstown Facilities 1869-1900

With the opening of Long Bridge in 1867, the south San Francisco area began its period of slow development. The road running north of Army Street and through the Crosstown Pump Station (Map 17) would no longer have been used as a means of transit to the south of Islais Creek area.

The area of highest sensitivity to construction impact on historical-archaeological resources on the entire Crosstown Tunnel route is that portion of the open-cut section at the foot of Bernal Heights approximately in the line of Bayshore Boulevard. This location was traversed by the old San Bruno Road (as can be seen on Map 17). The western side of San Bruno Road, at the foot of Bernal Heights, was in 1869 the site of several structures, and on the east side of the road was the area of the early Franconia Landing. The Wackenruder Map of 1863 (Map 3 in the earlier part of this survey) shows a structure labled "Franconia," between the San Bruno Road and Islais Creek. An Allardt tidelands map of 1869, and two real estate auction maps of about the same date, suggest that the "Franconia House" may have been moved from the position of the Wackenreuder Map. This would have occurred as the result of the building of Bay View Park turnpike east of the San Bruno Road, across the marshes of Islais Creek to the race track in the mid-1860's.

The uses associated with the structures that may be impacted by the open cut portion of the Crosstown Tunnel excavation have not been established beyond the point that the Franconia House was a traveler's way stop on the road, like the Overland Mail House and the 6 Mile House, further south on the San Bruno Road. A small warehouse at the landing represented the head of navigation in the late 1850's and early '60's when, according to Sharpsteen, shallow draft vessels (and the small steamer **Dashaway**) would have used this as a cargo landing (Sharpsteen 1942: 18).

The short open cut leg of the Crosstown Tunnel is all an area of fill from Bayshore Boulevard to a point just west of the intersection of Kansas and Army streets. As late as 1900, the Coast Survey ms. chart shows the open cut alignment crossing the location of a large structure located below the present grade level on the east side of the San Bruno Road. Therefore, we may conclude that there is a substantial potential for the existence of foundations of structures dating back the early and mid-1860's. The remains of these early structures may have been impacted by the freeway construction.

Any deposits of cultural remains in this construction area would be associated with identifiable structures in the San Bruno Road area. Their significance would depend upon their location, association, integrity, and the type and quantity of materials found in the sites. Cultural deposits dating to the 1860's and '70's might well have National Register significance.

26th Street from 1867 to 1919. In 1869, the 26th Street connection crossed the site of an abandoned boatyard on the line of Iowa Street. The location of this marine ways and boatyard is shown on an Allardt survey of the tidelands made in 1867, and it is mentioned more than once in the State Legislature's investigation of the dubious nature of the Golden Gate Homestead Association (previously described in the Sunnydale-Yosemite section of the report). This same testimony indicated that the bridge for the Bay View Railroad horsecar line from the Potrero to Hunters Point was not to be a drawbridge. Thus, not only was navigation to Franconia Landing, or any point on Islais Creek, cut off by 1868, but the boatyard was obviously rendered useless by lack of access. The Allardt map of November 1869, shows no marine railway at this location. Probably the master carpenter, whose name we do not know, was among those who moved out to Hunters Point.

As the proposed excavation along 26th Street runs almost directly along the line of the marine railway at Iowa Street, and through the boatyard located on the west side of Iowa Street, this is among the half-dozen boatyards subject to potential impact by the Bayside facilities.

It should be added that the investigative legal testimony that made much of the Homestead property improvement also established clearly that practically nothing else was built during this period of homestead expansion in the late 1860's.

Map 13, drawn for the Harbor Commission in 1919, shows a large unfilled "Tide Lands" pond with the shoreline still at Iowa Street. This large pond, together with a smaller pond, north of 25th Street, had been cut off from the Bay by the filling of the bridge line on Third Street by 1900 (U.S. Coast Survey Map 1900).

Construction Shafts and Vents for the Crosstown Tunnel. Close examination of the sites of construction shafts and vents for the proposed Crosstown Tunnel

reveals low sensitivity to potential archaeological resources in all cases. These sites include the Kansas Street construction shaft (which penetrates an area of former marsh of Precita Creek), the Bernal vent, the Wawona Park construction shaft, the Sunset Boulevard construction shaft, and alternative shafts at the Zoo parking lot and Lakeshore Plaza.

No historical archaeological remains of significance are probable at any of the above locations. The possibility of prehistoric remains is nil in the case of the Bernal Heights vent, and limited to pure chance in the case of other sites. The potential for paleontological remains, as has been mentioned earlier, is confined to any shafts west of Wawona, and is again a matter of unpredictable chance.

Extant Surface Structures. The Crosstown Pump Station and Reservoir is planned to occupy the site of the unused Soule Steel Plant. Built in the 1920's, this cinder block and corrugated iron structure has no architectural or historical significance. The site for the steel plant was partly blasted out of a steep hill of rock just south of the line of 25th Street, between Mississippi and Missouri streets. That portion of the plant closest to Army Street may have been built on filled land where it bordered the salt marsh tidelands of Islais Creek. This strip of proposed construction that parallels Army Street is the portion of the site planned for the deep construction necessary for the Crosstown Pump Station: the shallow reservoir is proposed for the site's rocky surface towards 25th Street. It does not appear that any of the extant abandoned buildings had basement structures.

Extant Subsurface Structures. The **Preliminary Survey of Cultural Resources for Army Street Route, 422-C2** anticipated the possibility of an open-cut excavation along the entire length of Army Street leading to the entrance of the Crosstown Tunnel near Valencia. Research revealed that Army Street had a box sewer constructed on piles in 1908. A still larger vaulted brick sewer, in the form of a handsome tunnel that allowed workmen headroom at the highest point, traverses most of the length of Army Street. Maps, photographs, and engineering drawings available in the archives of the San Francisco City Engineer's Office give a comprehensive and detailed survey of this large sewer, which does not constitute a cultural resource of historical significance.

The C. W. Grunsky "Report Upon a System of Sewerage for the City and County of San Francisco," published in 1899, deals with the plans for extensive renovation of the city sewer system. Considerable emphasis was given to the South San Francisco area because the tidelands around Mission Bay, Islais Creek, and Precita Creek had grade levels for streets that were so low that frequent breaks in wooden sewage boxes spread raw sewage throughout the marshes of the tidal basin. It was with some relief that the city health officer remarked that most San Franciscans lived beyond the smell that carried from Channel Street and Mission Bay, Islais Creek and the Precita Creek region.

ARCHAEOLOGICAL RECOMMENDATIONS: CROSSTOWN FACILITIES

by David A. Fredrickson

Mitigation procedures described in the following section are the recommendation of the consulting archaeologist. The procedures that will actually be employed are subject to approval by the State Water Resources Control Board, the Environmental Protection Agency, and the Advisory Council on Historic Preservation. Because of current uncertainties about funding, the final decision about mitigation will not be resolved until funds are available for design and construction of the proposed facilities.

The potential for prehistoric sites being encountered in the construction of the proposed Crosstown facilities is very greatly limited by two physical factors. 1) Only a small portion of the Crosstown Tunnel, from Army and Missouri streets across the entire breadth of San Francisco to the Southwest Treatment Plant near Ocean Beach, is planned to be excavated by cut-and-cover method. The major portion of the work proposed is a tunnel bore, in most cases far beneath the surface. 2) The largest facility excavation in the project, the Crosstown pump station and reservoir, lies almost entirely within a site previously cut deeply into the hillside north of Army Street. In the case of the Crosstown Tunnel, several construction or vent shafts would be required, but with the exception of the easternmost construction shaft (the Kansas Street shaft), archival research has shown that none of these surface penetrations appears to have any likelihood of encountering prehistoric or historic cultural resources.

At the same time, the short open cut section of the Crosstown Tunnel, the open cut Islais Creek Transport/Storage and some of the adjoining southern portion of the Crosstown Pump Station, and a portion of the 26th Street connection between the pump station and the Channel-Islais transport on Tennessee Street all show very distinct possibilities of encountering prehistoric or historic deposits of potential significance.

Prehistoric Site Potential of Crosstown Pump Station and Islais Creek. The area from the southern part of the Crosstown Pump Station, through the ground transected by the Islais Creek Transport/Storage, to approximately the northern

edge of Islais Creek is shown by early maps (1852, 1857, 1869) to have been a low-lying minor drainage basin, partly marshy. The appearance on the 1857 and 1869 maps of a cluster of three structures, from 250 south of the Crosstown site to 150 east of the Islais Creek Transport/Storage is an inconclusive but provocative indicator of the potential prehistoric site sensitivity otherwise shown by the topography.

Because there is no indication of any specific location of a prehistoric site in this sensitive area that would make any preconstruction archaeological testing program effective, a program of construction monitoring identical to that of similar areas of prehistoric sensitivity in the Sunnydale/Yosemite and Northern Bayside project areas is recommended. The area to be monitored consists of approximately 1000 feet of the proposed Islais Creek Transport/Storage and the area of the Crosstown pump station (but not including the Crosstown reservoir site).

Certain characteristics of the proposed excavations and alignments make the construction monitoring operation less time-consuming and costly than the large size and length of the proposed excavations would suggest. In the case of the Crosstown pump station, it appears that only the southern portion is below (or approximately at) original grade level. Therefore, the archaeological monitor is concerned only with the first few feet of construction excavation and only where he determines that any portions have not been subject to prior impact by excavation. In the case of the Islais Creek T/S, areas of original dry ground and original marsh are transected by the zig-zag course of the alignment. Knowledge of original surface conditions, as well as observation of present conditions as excavation proceeds, will make it unnecessary to inspect all levels of these large and deep trenches.

A large-scale monitoring map, of the type described earlier, should be prepared in advance of construction excavation to aid the Principal Investigator and field assistants in avoiding confusion caused by modern grade changes and subsurface features and in avoiding unnecessary monitoring time.

To avoid confusion, the segment of the Islais Creek project that should be monitored extends from the Crosstown site to a point approximately 600 feet due south.

The major aim of the monitoring program would be the identification and recording of the archaeological resource. Data recovery in the conventional sense would be implemented to the degree that it is feasible to coordinate

an adequate salvage program with ongoing construction work. For example, emergency salvage might take place on weekends or after normal working hours, or it may be feasible for the contractor to move major operations to a point clear of the resource area without incurring costly delays.

The recommended monitoring program would be conducted as follows: 1) The archaeological technician would make daily visits to the identified construction sites and would be authorized to observe earth removal as well as to examine wall profiles exposed during construction as deemed appropriate; 2) If materials of archaeological interest are unearthed, the technician would notify the Principal Archaeological Investigator (PAI), who would himself, or if unavailable for legitimate reason would through a delegated representative with training and experience sufficient for certification by the Society for Professional Archaeologists, visit the site to evaluate the finds; 3) The PAI would determine whether emergency salvage was pertinent and, in consultation with Resource Consultants, the City, and the contractor's representative, would arrange for such work to be done. Only if significant archaeological remains were determined to be present—**e.g.,** cultural materials in association with extinct megafauna or otherwise suggestive of the Paleoindian period—would a delay in construction in the site area be requested. As suggested above, a descending order of data recovery and recording work would be appropriate to a site deemed of lesser apparent significance by the PAI and the identified consultants.

Historical Archaeological Recommendations

Four areas in the proposed Crosstown Facilities project are shown by archival research to offer the potential of historical cultural resources that may be subject to construction impact.

1) The area of prehistoric sensitivity described immediately above has the possibility—but not probability—of containing some substructure or deposit associated with the three early (1857) buildings located near, but not on, the proposed facilities construction sites. The recommended prehistoric resources monitoring program would provide adequate mitigation procedures for such finds.

2) The open-cut section of the Crosstown Tunnel, from approximately Kansas and Army streets to the east side of Bayshore Boulevard, is a filled

area in which structures existed from the early 1860's. It is recommended that a maximum of six inspections by the Principal Investigator or his designated associate be made of the excavation progress from the Kansas Street construction shaft to a point along the southward extension of the west side of Vermont Street. Procedures for such inspections, for consultation or temporary cessation of construction in the event of a significant archaeological find, and for a brief report of the conditions observed during inspections are the same procedures recommended for the Division Street Connection and the Northern Bayside refuse disposal sites.

A case of higher archaeological sensitivity exists in the section of the proposed cut from the southerly extension of the west side of Vermont Street to the southerly extension of the west side of San Bruno Avenue (these southerly extensions of street grid lines are from the area of 24th to 25th streets). Here, a 50-feet-to-the-inch historical overlay map of the type described earlier should be made prior to construction, and monitoring should take place on a daily basis, as in the case of the prehistoric sites above. This area of the Old San Bruno Road had identifiable structures of the 1860's that are directly transected by the proposed Crosstown cut. Cultural deposits associated with an early roadhouse, such as that associated with Franconia Landing, might prove of National Register significance.

3) The boatyard of the late 1860's at Iowa and 26th streets should be monitored in the same manner as that proposed for the boatyards or shipyards discussed in the recommendations for the Hunters Point and Northern Bayside facilities. The area that should be monitored extends from the west side of Iowa Street approximately 150 feet westward. It should be noted that in 1869 a cluster of houses lay about 75 feet north of the area recommended for monitoring, and that prehistoric resource potential is not absent. It is recommended that a 50-feet-to-the-inch monitoring map with historical overlays be prepared for this site.

4) There is the possibility, though not high probability, of the remains of a sunken hulk lying in the alignment of the southerly portion of the Islais Creek Transport/Storage. This physical potential exists from the point where the alignment crosses the north side of the Islais Creek Channel to the southern terminus of the alignment—particularly in that area south of the southerly bank of Islais Creek Channel. Recommendations for dealing with such a discovery have been discussed at length in connection with the Sunnydale Yosemite, Division Street Connection, and Northern Bayside recommendations. The same procedures are recommended here.

Finally, it will be repeated that the preconstruction briefing of construction personnel by the Principal Investigator described in earlier archaeological recommendations in this study should be undertaken. If significant archaeological finds require temporary cessation of excavation, the procedures described in previous recommendation sections should be taken. They include consultation with Clean Water Program officials, officers of appropriate state and federal reviewing agencies, consultants as required, and construction company officers. In sum, these procedures will facilitate the least possible lost time in construction scheduling, while at the same time guaranteeing compliance with appropriate regulations.

BIBLIOGRAPHIES

The bibliographies that follow have been sub-divided into sections to aid the reader in locating specialized information in what is essentially an interdisciplinary approach to the cultural resources study research in this Bayside Survey.

These lists contain all cited references, marked with an asterisk *, and other references that the authors felt would be helpful as background material. The bibliographic material is organized as follows:

1. Paleontological Bibliography
2. Prehistoric & California Indian References
3. Spanish-Mexican References
4. Historic References, General to San Francisco & Specific to the Bayside Facilities area
5. Cultural Resource Surveys & Overviews & Historical-Archaeological References not otherwise covered

The bibliographies were derived from the current Bayside Study, but also included selected references from the author's **Rincon de las Salinas y Potrero Viejo -- Portrait of a Vanished Corner; The Southeastern Treatment Plant** (1982): Wirth Associates' **Potrero 7: Phase I,** Cultural Resources, Overview & Inventory, and their follow up volume, **Potrero 7: Phase II.** Following the current archaeological bibliographical style, books are not underlined, nor are articles placed in quotation marks.

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Minor White captured the mood and the changes that were typical of south San Francisco in December of 1949. Heavy industry was side by side with houses left over from the 1880's. (California Historical Society)

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